Geology, Exploration and Mining in British Columbia

1971

British Columbia Department of Mines and Petroleum Resources

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INTRODUCTION

The first Minister of Mines of the Province of British Columbia was appointed in 1874. One of his responsibilities was "the duty of collecting information on the subject of the mining industries of the Province." This material, which consisted of reports by the Gold Commissioners and Mining Recorders of the Province, was published in the Annual Report of the Minister of Mines.

A Bureau of Mines was established by Parliamentary authority in 1895 and in 1896 was staffed by a Provincial Mineralogist and an assayer and chemist. Technical reports on mines and mining activities were prepared by them and published in the Annual Report, together with reports contributed by the Mining Recorders and Gold Commissioners.

Over the years with the expansion of the mining industry, the staff of the Department of Mines grew, as did the number and size of the technical reports on geology and mining that were still published in the Annual Report of the Minister of Mines. Over a period of nearly 75 years the Annual Report became known as the authoritative record of mining in the Province.

However, in 1969, because of the size to which the Annual Report had grown, it was decided to publish all geological and technical reports on Metal Mining and Exploration, Placer, Structural Materials and Industrial Minerals, and Coal Mining and Exploration in a separate volume entitled *Geology, Exploration, and Mining in British Columbia.* Thus a new annual publication was initiated which, as a separate entity from the Annual Report, exists for the purpose of publishing geological and technical reports and of recording the exploration activity in the Province.

Each year the Annual Report of the Minister of Mines and Petroleum Resources is also published. It contains a general review of the mineral industry and chapters on Statistics, Departmental Work, Petroleum and Natural Gas, and Inspection of Mines.

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METAL MINES

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GENERAL REVIEW OF EXPLORATION AND METAL MINING

By Stuart S. Holland and A. Sutherland Brown

PRODUCTION

Metal production in British Columbia which had increased annually for five years to a record production of $309,981,470 in 1970 declined by $10,072,825 or 3.2 per cent to $299,908,645 in 1971. Although there were increases in copper, zinc, tungsten, and iron the production values of all the other metals decreased, that of molybdenum being particularly large.

The value of gold production continues to decline and the Bralorne mine, the last gold mine in the Province, having been in continuous production since 1932, ceased operations early in the year. The percentage of gold contributed by base-metal mines in 1971 amounted to 57.3 per cent compared with 60.8 per cent in 1970.

Placer gold continues to decline and since discovery in the 1850's has never been as low as the $4,647 production in 1971.

During the year the average price of silver declined from $1.85 in 1970 to $1.56 in 1971. Silver production increased by 1,143,099 ounces but decreased in value because of the decline in silver price. There were substantial increases in production from the Annex, Brenda, Lynx, Silmonac, and Sullivan mines.

The average price of copper decreased from 58.7 cents per pound in 1970 to 46.7 cents in 1971. Copper production again increased significantly in quantity, by 66,136,784 pounds of 31.2 per cent but only 4.3 per cent in value. At $130,052,336 it is the most valuable metal produced in the Province.

Increased production resulted largely from Brenda mine which had been operating all year at full capacity and to new production from Granduc mine and to a lesser extent to Island Copper mine which came into production in the latter part of the year.

Increased copper production in 1972 is anticipated, the increment being derived from a full year's production at Island Copper at 33,000 tons per day, increased mill capacity at Bethlehem to 16,000 tons per day, increased mill capacity at Granisle to 14,000 tons per day, and from new production during part of the year from the following mines: OK (Alwin) at 500 tons per day, Bell (Newman) at 10,000 tons per day, Bull River at 750 tons per day, Gibraltar at about 40,000 tons per day, Similkameen (Ingerbelle) at 15,000 tons per day, Lornex at 38,000 tons per day, and Sunro at 1,500 tons per day.

During the year the average price of lead decreased from 16.336 cents to 13.95 cents per pound. Consequently despite the increased production of lead, the 1971 value of production was down. The increased quantity of lead was contributed by the Annex, Bluebell, Silmonac, and Sullivan mines.

The average price of zinc increased from 16.006 cents to 16.286 cents per pound in 1971. Increased production of zinc together with the slightly higher average price resulted in the value of zinc production being significantly higher. The increased quantity of zinc was contributed by the Annex, Ruth Vermont, Silmonac, and Sullivan mines.

The Bluebell and Ruth Vermont mines closed late in the year. The Ruth Vermont is being maintained so that production can be resumed but the Bluebell is closed permanently having been in continuous production since 1952. Its earliest production is recorded in 1895.

Production of iron concentrates increased both in quantity and value. Iron concentrates were produced at Craigmont, Tasu, and Texada mines and iron sinter from Sullivan mine.

Molybdenum, the third most important metallic product, declined in value by $16.6 million, from $52.56 million in 1970 to $36.95 million in 1971. This was largely due to stockpiling of molybdenite concentrates at Brenda mine as a result of reduced sales on world markets and a 25-per-cent cutback in production at Endako mine. The difficult marketing situation lead to the closure by Noranda Mines, Limited of their Boss Mountain mine late in the year. Further decreased molybdenum production is anticipated in 1972 because of another 25-per-cent cutback in production at Endako mine and the closure early in 1972 by Consolidated Canadian Faraday Ltd. of their Red Mountain (Coxey) mine, and by British Columbia Molybdenum Limited of their British Columbia Molybdenum mine.

Tungsten production was again significant from a full year's operation at Invincible mine at about 500 tons per day.

PROVINCIAL REVENUE FROM MINING COMPANIES

Direct revenue to the Provincial Government derived in 1971 from the mining section of the mineral industry was as follows:

Free miners' certificates, recording fees, lease rentals, assessment payments, etc.	$1,655,858.61
Royalties on iron concentrates	253,048.59
Rentals and royalties on industrial minerals and structural materials	403,687.00
Fifteen-per-cent mining tax (received during 1971)	4,978,917.00
Coal licences	264,423.82
TOTAL	$7,555,935.02

EXPENDITURES BY MINING COMPANIES

Major expenditures in 1971 by companies involved in the exploration, development, and mining of metals, minerals, and coal were as follows:

Capital expenditures	$294,562,194	
Exploration and development	79,761,328	$374,323,522
Mining operations (metals, minerals, coal)		203,935,369
Mining operations (structural materials)	18,878,901	18,878,901
Repairs expenditures		55,063,940
	TOTAL	$652,201,732

Capital and repair expenditures are listed separately because of difficulties in allocating them consistently. Most of the repair expenditures should be applied to mining operations and most of the capital expenditures to exploration and development.

MINING

In 1971, 42,566,086 tons of ore from 52 mines was mined and subsequently concentrated or shipped. This represents an increase in tonnage of about 6 per cent over

1970. Eleven mines produced more than 1 million tons each and all but four of these were open-pit mines. Twelve mines produced between 100,000 and 1 million tons each of which four were open-pit mines. Eight mines produced between 1,000 and 100,000 tons of ore.

The eleven open-pit mines produced more than 32.8 million tons of ore. The two largest mines in the Province are Endako at 9,051,000 tons and Brenda at 8,987,210 tons; both are open-pit operations. The largest underground mines are Sullivan at 2,005,301 tons and Craigmont at 1,833,461 tons.

During the year Utah Mines Ltd. brought their Island Copper mine at Rupert Inlet into production. The concentrator has an installed capacity of 33,000 tons per day. Placid Oil Company began mining at their Bull River mine near Wardner and tune-up operations at the 750-ton-per-day concentrator were begun in October but no concentrate shipments were made before the end of the year.

During the year the following mines closed:

Bluebell (Cominco Ltd.)
Boss Mountain (Noranda Mines, Limited, Boss Mountain Division)
Bralorne (Bralorne Can-Fer Resources Limited)
Golconda (Trent Resources Ltd.)
Magnum (Churchill Copper Corporation Ltd.)
Ruth Vermont (Copperline Mines Ltd.)
True Fissure (Columbia Metals Corporation, Limited)

The Boss Mountain, Magnum, and Ruth Vermont mines are being maintained so that they can be reopened when economic conditions are more favourable.

CONCENTRATING

In 1971, 31 concentrators were in operation:— nine treated silver-lead-zinc ore, eight treated copper ore, one treated copper-iron ore, one treated copper-zinc ore, one treated copper-molybdenum ore, five treated molybdenum ore, two treated iron-copper ore, one treated nickel-copper ore, one treated gold ore, one treated tungsten ore, and one treated mercury ore.

Construction of a concentrator by Utah Mines Ltd. at their Island Copper mine at Rupert Inlet was completed and the mine came into production in October at an installed capacity of 33,000 tons per day.

Construction of a concentrator by Placid Oil Company at their Bull River mine near Wardner was completed in October. Tune-up operations at the concentrator, capacity 750 tons per day, were begun but no concentrate shipments were made.

Construction of a new concentrator by Giant Mascot Mines Limited at their Pride of Emory mine on Emory Creek was completed and production was recommenced in May. This concentrator replaced the one destroyed by fire in August 1970.

At year end concentrators were under construction at the following mines:

OK (Alwin), Highland Valley, 600 tons per day, copper-silver ore.
Bell (Newman), Babine Lake, 10,000 tons per day, copper-silver ore.
Gibraltar, McLeese Lake, 30,000 tons per day, copper-molybdenum ore.
Lornex, Highland Valley, 38,000 tons per day, copper-molybdenum ore.

Silver Queen (Nadina), Owen Lake, 500 tons per day, silver-lead-zinc-copper-gold ore.

Similkameen (Ingerbelle), Princeton, 15,000 tons per day, copper-molybdenum ore.

Sunro, Jordan River, 1,500 tons per day, copper ore.

All these mines will be brought into production in 1972.

During the year the enlargement of the Granisle concentrator from 6,500 to 14,000 tons per day was begun. The enlarged plant is expected to be in operation late in 1972.

During the year mining and milling operations were terminated by:

Bralorne Can-Fer Resources Limited (Bralorne mine).
Cominco Ltd. (Bluebell mine).
Churchill Copper Corporation Ltd. (Magnum mine).
Copperline Mines Limited (Ruth Vermont mine).
Noranda Mines, Limited, Boss Mountain Division (Boss Mountain mine).

SMELTING

The only base-metal smelter in operation in the Province is owned and operated by Cominco Ltd. at Trail. From mines in British Columbia it received 167,151 tons of lead concentrates and 221,071 tons of zinc concentrates. The company's own mines (Sullivan and Bluebell) contributed 162,748 tons of lead concentrates and 220,631 tons of zinc concentrates. Other mines in British Columbia contributed 4,403 tons of lead concentrates, 440 tons of zinc concentrates, and 6,589 tons of crude ore all of which was treated on a custom basis. In addition the smelter also treated a large tonnage of ore, concentrates, and scrap from sources outside the Province. The company's Pine Point mine was a large contributor.

Products exported to American smelters were: copper concentrates, 19,023 tons; copper matte, 1,368 tons; lead concentrates, 7,044 tons; and zinc concentrates, 67,487 tons. The value of these products was $19,565,843. It represents about 6.5 per cent of the value of the 1971 metal production of the Province.

Products exported to Japanese smelters were: copper concentrates, 507,393 tons; nickel-copper concentrates, 14,487 tons; zinc concentrates, 8,884 tons; iron concentrates, 1,844,196 tons. The value of these products was $151,071,154, an increase of $7,828,681 from 1970. It represents about 50.4 per cent of the value of the 1971 metal production of the Province.

DEVELOPMENT

Statistical returns from mining companies indicate that in 1971, $232,147,526 was spent by companies in preproduction metalliferous mine development, concentrator construction, provision for power and transportation facilities, and in additions to plant capacities.

During the year preproduction mine deveopment and (or) mill construction was being undertaken by the following companies:

Alwin Mining Co. Ltd., OK (Alwin) mine.
Dison Development Ltd., Sunro mine.

Lornex Mining Corporation Ltd., Lornex mine.
Noranda Mines, Limited, Bell (Newman) mine.
Placer Development Limited, Gibraltar mine.
Similkameen Mining Company Limited, Similkameen (Ingerbelle) mine.
Nadina Explorations Limited, Silver Queen (Nadina) mine.
Placid Oil Company, Bull River mine.
Utah Mines Ltd., Island Copper mine.

EXPLORATION AND PROSPECTING

The indices of exploration activity are mixed, a few higher but most lower than in 1970, as might be expected in a period when a general plateau has been reached in the mineral industry. However, the momentum generated in the preceding years has carried over into the more advanced activities but primary prospecting, indicated by claims recorded or free miners' certificates, is down. Nevertheless these indices are not down by the amount predicted in some quarters. The following table illustrates these facts:

Index	1971	1970	Per Cent Change
Claims recorded	57,778	69,546	−16.4
Free miners' certificates			
Individuals	9,351	10,034	−7.3
Companies	930	911	+3.7
Certificates of work	106,704	118,633	−10.2
No. of properties*	501	556	−9.9
Money spent†	39,054,144	46,353,511	−15.7

*From Departmental exploration questionnaires.

†From returns to Department of Industrial Development, Trade, and Commerce, Victoria.

Recording of claims was most active in Kamloops, Liard, Omineca, and Similkameen Mining Divisions in 1971 and new discoveries and developments such as Robb Lake and Afton in these districts, guarantee they will be very active in 1972. However through most of 1971, minor companies supported by public financing found it difficult to raise funds for exploration so that their activity was down. Major exploration companies had mixed records with some cutting back considerably, many a little, but some, notably mineral exploration wings of petroleum companies and European and Japanese companies, expanded their activities.

Information provided by exploration companies to the Department on questionnaires mailed to them yearly is vital in the production of this volume. This information is the basis of half the text and the only way the Department can attempt to get complete coverage of activity. The information is summarized in the following table.

Comparative totals for 1970 are shown below those for 1971. It is notable that the number of active properties decreased by about 10 per cent but that the relative amount of geological and geochemical surveying increased whereas geophysical surveying decreased markedly. Physical work on the surface increased in 1971 but underground remained much the same. Drilling totals are down significantly in all but rotary drilling. The percentage changes are: diamond drilling, surface, −42.1 per cent; underground, −24.8 per cent; rotary, +55.6 per cent; percussion, −63.1 per cent. A conclusion from these figures is that expensive work tended to be reduced or abandoned in 1971 although general activity remained high.

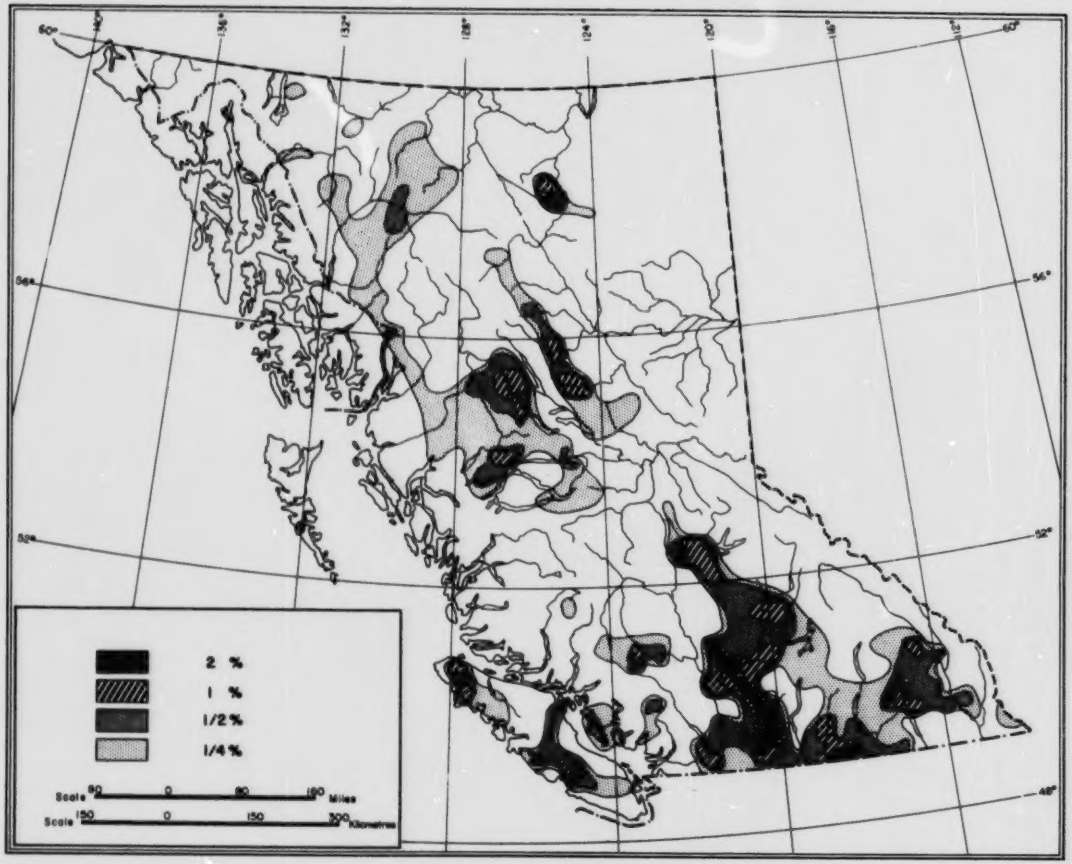
Mining Division	Number of Properties	Type of Work					Drilling			
		Geological Mapping	Geophysical Surveys	Geophysical Surveys	Physical		Surface Diamond Drilling (Ft.)	Underground Diamond Drilling (Ft.)	Rotary (Ft.)	Percussion (Ft.)
					Surface	Under-ground				
Alberni	17	12	6	10	8	1	7,980	75,074	—	670
Atlin	13	10	4	7	5	3	8,509	—	2,812	—
Cariboo	28	11	9	11	14	—	25,910	255	—	7,244
Clinton	18	7	5	11	4	—	1,701	—	—	13,232
Fort Steele	14	7	4	5	3	—	3,916	—	—	—
Golden	13	7	1	5	7	—	4,800	—	—	300
Greenwood	18	9	11	9	4	—	13,701	—	—	1,950
Kamloops	59	27	26	33	13	3	57,563	1,074	—	31,252
Liard	52	31	16	18	17	4	57,129	10,566	—	4,615
Lillooet	13	8	3	5	6	1	8,294	—	125	—
Nanaimo	27	13	11	12	17	—	22,924	—	—	146
Nelson	2	1	2	1	1	1	—	—	—	—
New Westminster	15	11	7	11	5	1	8,945	—	—	—
Nicola	16	10	7	9	3	—	5,611	450	—	6,000
Omineca	104	44	50	56	23	2	73,613	40,719	800	3,250
Osoyoos	9	6	8	5	2	1	510	—	—	2,550
Revelstoke	2	2	1	1	—	—	3,517	—	—	—
Similkameen	31	15	11	18	6	1	11,891	—	—	—
Skeena	18	8	7	9	1	8	6,863	—	—	8,057
Slocan	10	5	3	2	5	—	778	—	—	48
Trail Creek	1	—	1	1	—	—	—	—	—	—
Vancouver	11	8	4	7	4	—	4,836	—	—	2,380
Vernon	3	—	—	1	2	—	—	—	—	—
Victoria	7	2	4	4	3	—	4,662	—	—	240
Totals	501	254	201	251	153	26	333,653	128,138	3,737	81,934
Totals, 1970	556	258	259	264	172	25	576,806	96,316	2,400	235,883

The number of properties not in production on which major exploration programmes were undertaken was slightly less than 1970. Major programmes are judged to have had more than 10,000 feet of drilling or more than 1,000 lineal feet of underground development. Many properties, more than in 1970, had activities about half as much as these criteria. Ones with major programmes are as follows (see body of report for details):

Liard Copper property on Schaft Creek.
Eagle mine on Yedhe Creek.
Gibraltar mine near McLeese Lake.
Glacier Gulch property on Hudson Bay Mountain.
Sunro mine at Sooke.
Catface property near Myra Creek.
Iron River property near Courtenay.
Evening Star at Kamloops.
Afton property at Kamloops.
Maggie mine on the Bonaparte River.
Copper property on Poison Mountain.

OK (Alwin) mine in the Highland Valley.
Jericho property in the Highland Valley.
JA zone, Bethlehem Copper Corporation Ltd., in the Highland Valley.
Goof, Sue, and Hail on Harper Creek.

The distribution of exploration on properties in 1971 and 1970 is shown on two maps of the Province (index maps I and II). The development of these maps is described in the *Western Miner,* April 1972, pages 28 to 30. The percentage figures refer to number of active properties per unit area but for the purposes here are used to illustrate a gradation of activity. Figure I for 1971 was produced for an article by Jackson, E. V., Carter, N. C., and Fyles, J. T. (*Can. Mining Jour.,* April 1972, pp. 50 to 57). Comparison of these figures shows the overall similarity of the distribution of prospecting effort but also shows some changes. Trends evident in 1971 are a general decrease in activity in the north presumably related to the higher average cost of working there. Also there is an indication of withdrawal into recognized areas of high mineral potential. Specifically there was increased activity in the area of the Hogem batholith, Racing and Muskwa River areas, and close to Gibraltar, but a decrease in the Western Skeena Arch, the Cariboo north of Gibraltar, the Cassiar area, and the Atlin area. Newly located claim groups closely conform to the pattern shown on Figure I except for some recorded late in the year, notable the big claim groups in the Robb Lake area which does not show on the figure.


60°
140°
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132°
128°
124°
120°
116°
112°
56°
52°
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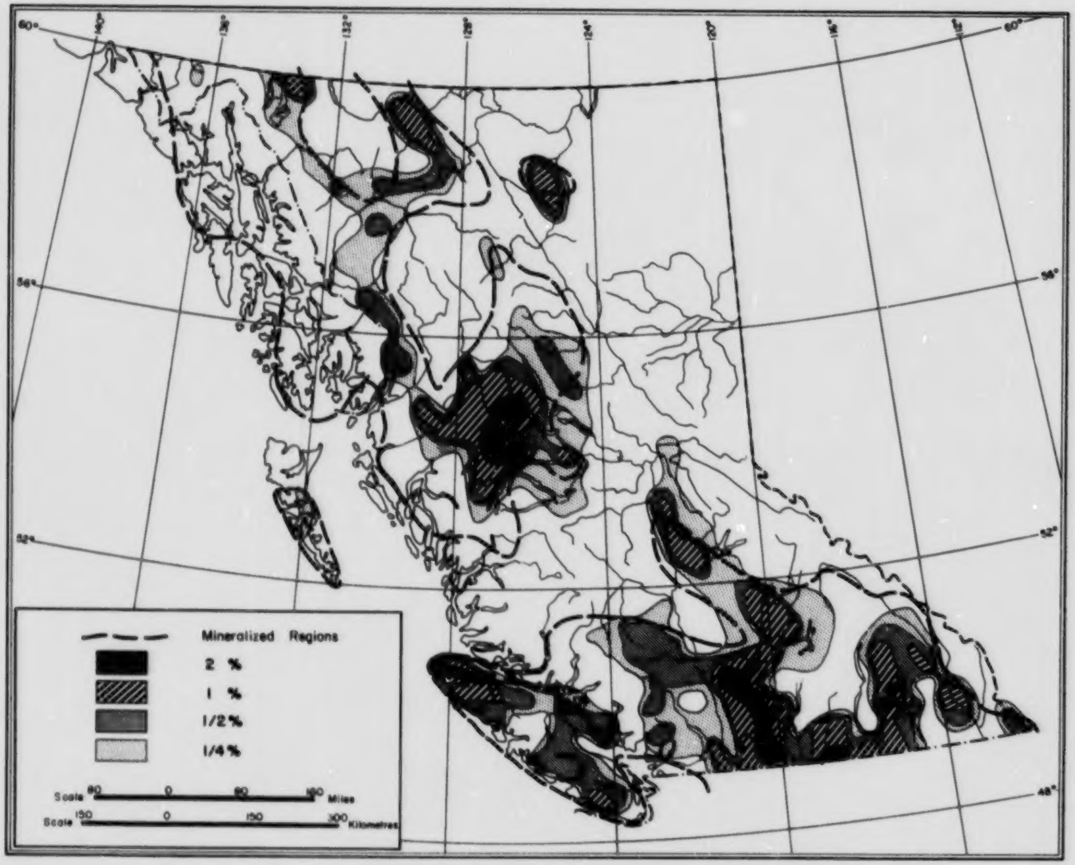
2 %
1 %
1/2 %
1/4 %
Scale 80 0 80 160 Miles
Scale 150 0 150 300 Kilometres

Figure I. Distribution of mineral properties active in 1971.


60°
140°
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124°
120°
116°
112°
60°
56°
56°
52°
52°
48°
Mineralized Regions
2 %
1 %
1/2 %
1/4 %
Scale 80 0 80 160 Miles
Scale 150 0 150 300 Kilometres

Figure II. Distribution of mineral properties active in 1970.

INTRODUCTION

The reports that form the body of this Chapter consist of a large number of brief tabulated summaries of known active properties and mines and a smaller number of more detailed geological reports of properties, mines, and areas of mineral potential. The sources of information, organization of the report, policy on names, and other publications of the Department during 1971 are discussed below in that order.

SOURCES OF INFORMATION: (1) Geologists on the staff of the Mineralogical Branch as a major priority prepare reports on mineralized areas and mineral deposits for Geology, Exploration, and Mining in British Columbia. Generally these reports are concerned with areas or properties under active exploration and some concern recent discoveries. Some are part of a more general study of mineralized areas that will form the body of a later bulletin. Substantial reports include the following:

Toodoggone River Area, by N. C. Carter, *see* pages 63 and 64.
CHAPPELLE, by N. C. Carter, *see* pages 65 to 70.
BLUE, on Grayling Creek near the head of the Muskwa River, by N. C. Carter, *see* pages 72 to 75.
Copper Deposits of the Racing River-Gataga River Area, by V. A. Preto, *see* pages 75 to 102.
BERGETTE, in the Sibola Range, by B. N. Church, *see* pages 147 to 157.
GRANISLE MINE, by N. C. Carter, *see* pages 178 to 183.
Duckling Creek Area, Hogem Batholith, by J. A. Garnett, *see* pages 203 to 210.
LORRAINE, by J. A. Garnett, *see* pages 215 to 217.
CATFACE, near Tofino, by K. E. Northcote, *see* pages 236 to 245.
NI, near Pride of Emory mine, by G.E.P. Eastwood, *see* pages 258 to 264.
SHEBA, in the Highland Valley, by W. J. McMillan, *see* pages 348 to 357.
Gravity Survey of the Guichon Creek Batholith, by C. A. Ager and W. J. McMillan, *see* pages 363 to 369.
LEXINGTON, near Greenwood, by B. N. Church, *see* pages 376 to 379.
LYNX, LATE, near Okanagan Falls, by B. N. Church, *see* pages 386 to 396.
SPAR, near Lumby, by J. W. McCammon, *see* pages 431 and 432.

(2) A considerable amount of information in the following report was supplied by exploration companies. Their co-operation in completing and returning exploration questionnaires for each of the properties on which they worked is gratefully acknowledged by the Department and should be greatly appreciated by all users of this Report. In some instances this information is augmented by staff geologists or mining inspectors.

(3) Geological, geophysical, and geochemical reports accepted by the Department for credit as assessment work contain a large amount of valuable information. The results of work presented in assessment reports that were accepted by January 15, 1972 are summarized and published. The last report summarized is Assessment Report 3417. However, assessment reports accepted after January 15, 1972, for which exploration questionnaires have already been submitted to the Department are entered as references in the property write-ups until the manuscript is finalized for printing. Reports accepted in 1971 on work done in 1970 are not summarized if the work was previously reported

on exploration questionnaires. A consequence of this policy is that not all assessment reports appear as references. Assessment Reports are available for reading or duplication at cost one year after acceptance.

ORGANIZATION: The reports are organized systematically according to National Topographic System map designations. In the NTS designation, the whole of Canada is divided into primary quadrangles, each 4 degrees latitude by 8 degrees longitude and each described by a number, the last digit of which indicates latitude and the first one or two indicate longitude (for example, 104). British Columbia is covered by six of these primary quadrangles except for minor areas. Figure 1 indicates the index maps used in this report and these are virtually identical to the primary quadrangles. In fact, Figure B is quadrangle 94, D is 93, E is mostly 92, likewise A is 104 and some of 114, C is 103, and G is 82 and some of 83.

Each primary quadrangle is subdivided into 16 map-sheets, each 1 degree latitude by 2 degrees longitude, and described by letters A to P (for example, 104G) proceeding from the southeast corner to the west in the southern panel, then east in the next panel, and so on. Each lettered quadrangle is subdivided into 16 map-sheets, each 15 minutes latitude by 30 minutes longitude and numbered 1 to 16 in an analogous manner to the lettering (for example, 104G/7). Finally, each sheet is halved east and west for maps of the 1:50,000 series and are described, for example, 104G/7E.

An index to published maps may be obtained by requesting Indexes 8 to 14 from the Department of Lands, Forests, and Water Resources, Victoria. Map No. 1 JNT shows the NTS map-sheets covering the Province.

The reports in this Chapter proceed by primary quadrangle from the northwestern part of the Province (Fig. A) to the southeastern part (Fig. G). Within each primary quadrangle the order proceeds from A/1E to A/1W to A/2E, and sequentially to P/16W.

LOCATIONS: In this Report the location of a property is described by latitude and longitude as well as by NTS designation of the 1:50,000 map-sheet in which it lies. The location of a large and commonly irregular group of claims is given as a range of co-ordinates which outlines the rectangle which will encompass the group, it is not necessarily the area in which the work was done. The location of the centre of a small group of claims, or of a mineral deposit, is given as a single co-ordinate pair, the accuracy of which varies with the type of data from which the claims were plotted.

NAMES: The name or names given to a property mainly are those of one or more of the claims that constitute the group. Occasionally a name is used by which the property originally or formerly had been known (for example, Glacier Gulch, Magnum) or which was used in the mineral inventory but the claim names were since changed (for example, Golconda is now Copper King, Voigt, Northstar, Trout, etc.). Occasionally a name is used which is derived from the name of the company owning the property (for example, Bralorne, Granisle). Where practicable, all names of claims comprising a property are given under the heading 'Claims.'

PUBLICATIONS: Geology, Exploration, and Mining in British Columbia is the main publication of the Department concerning metal and mineral exploration, however it is not the only one. In 1971 one bulletin was published, Bulletin No. 58, Geology and Mineral Deposits of the Stewart Area, by Edward W. Grove. The bulletin is concerned with the complex Mesozoic geology of an area on the east flank of the Coast Crystalline Complex which has been noted for its many mineral deposits including the famous Silbak Premier mine.

Index No. 5, Numerical List of Geological, Geophysical, and Geochemical Reports Accepted for Assessment from 1947 to the end of 1970 was also published. This included NTS designation of the report and a cross-index by NTS sheet of all reports.

Additional reports and articles published in 1971 in which geologists of the Mineralogical Branch were authors or co-authors and which were related directly to their work are as follows:

Holland, Stuart, S., Another Record Year, *Western Miner,* April 1971, pp. 85-89.

Preto, V. A., White, W. H., and Harakal, K. E., Further Potassium-Argon Age Dating at Copper Mountain, British Columbia, *C.I.M.,* Bull., Vol. 64, pp. 58-61.

Sutherland Brown, A., Cathro, R. J., Panteleyev, A., and Ney, C. S., Metallogeny of the Canadian Cordillera, *C.I.M.,* Trans., Vol. LXXIV, pp. 121-145.

The following preliminary geological maps were released in 1971:

No. 3 – Highland Valley Assessment Report Index (complete to May, 1970), compiled by W. J. McMillan (two sheets, part of 92I).

No. 6 – Geology of the Owen Lake, Parrott Lakes, Goosly Lake Area, by B. N. Church (part of 93L/1 and 2).

No. 7 – Geological Map of the Highland Valley, by W. J. McMillan (four sheets; 92I/11a, 10d, 7e, 6h).

The following preliminary inventory maps were released in 1971:

	Sheet Designation	Scale	Number of Properties
82E/SW (MI)	Penticton	1 inch to 2 miles	75
82E/NW (MI)	Kelowna	1 inch to 2 miles	35
82E/NE (MI)	Upper Kettle River	1 inch to 2 miles	40
82F/SE (MI)	Creston	1 inch to 2 miles	46
82F/NW (MI)	Slocan	1 inch to 2 miles	211
82F/NE (MI)	Kaslo	1 inch to 2 miles	97
82G/SE (MI)	Flathead	1 inch to 2 miles	36
82G/SW (MI)	Elko	1 inch to 2 miles	35
82G/NW (MI)	Cranbrook	1 inch to 2 miles	56
82K/SE (MI)	Lardeau	1 inch to 2 miles	59
82K/NE (MI)	Invermere	1 inch to 2 miles	38
82L/SE (MI)	Sugar Lake	1 inch to 2 miles	14
82L/SW (MI)	Vernon	1 inch to 2 miles	66
82L/NW (MI)	Shuswap Lake	1 inch to 2 miles	32
82L/NE (MI)	Revelstoke	1 inch to 2 miles	11
92G (MI)	Vancouver	1:250,000	72
92K (MI)	Bute Inlet	1:250,000	77
93A (MI)	Quesnel Lake	1:250,000	39
94C (MI)	Fort Grahame	1:250,000	62
94D (MI)	McConnell Creek	1:250,000	55
94K (MI)	Tuchodi Lake	1:250,000	39
92H/SW (MI)	Chilliwack Lake	1 inch to 2 miles	81
92H/NW (MI)	Yale	1 inch to 2 miles	37
92H/NE (MI)	Tulameen	1 inch to 2 miles	97

NOTE:–All map sheets contain property name, number, and commodity.

	Sheet Designation	Scale	Number of Properties
92I/SE (MI)	Merritt	1 inch to 2 miles	142
92I/SW (MI)	Lytton	1 inch to 2 miles	58
92I/NW (MI)	Ashcroft	1 inch to 2 miles	47
92I/NE (MI)	Kamloops Lake	1 inch to 2 miles	109
92N (MI)	Mount Waddington	1:250,000	29
93E (MI)	Whitesail Lake	1:250,000	28
94E (MI)	Toodoggone River	1:250,000	25
104A (MI)	Bowser Lake	1:250,000	61
104B (MI)	Iskut River	1:250,000	82
104G (MI)	Telegraph Creek	1:250,000	35
104I (MI)	Cry Lake	1:250,000	30
104J (MI)	Dease Lake	1:250,000	17
104K (MI)	Tulsequah	1:250,000	31
104M (MI)	Skagway	1:250,000	30
104N (MI)	Atlin	1:250,000	62
104P (MI)	McDame	1:250,000	45
114P (MI)	Tatshenshini River	1:250,000	21

NOTE:—All map sheets contain property name, number, and commodity.

Most of the mineral inventory maps are known to be incomplete. They are continually being amended, but it is expected that final maps will not be available for several years.

White prints of the preliminary geological and mineral inventory maps are available for $1 per sheet on application to the Chief, Mineralogical Branch, Department of Mines and Petroleum Resources.

No aeromagnetic maps of the Federal-Provincial Government-financed programme were released in 1971.

Table 1—Metal Production, 1971

Property or Mine	Location of Mine	*See* Page	Owner or Agent	Ore Shipped or Treated	Product Shipped	Gross Metal Content					
						Gold	Silver	Copper	Lead	Zinc	Cadmium
Alberni Mining Division											
Lynx mine	Buttle Lake	252	Western Mines Ltd.	Tons 386,541	Copper concentrates, 25,655 tons; lead concentrates, 2,170 tons; zinc concentrates, 38,848 tons	Oz. 12,422	Oz. 498,091	Lb. 13,889,779	Lb. 4,758,596	Lb. 46,772,351	Lb. 197,523
Atlin Mining Division											
Nil											
Cariboo Mining Division											
Boss Mountain mine	Big Timothy Mountain	129	Noranda Mines Ltd. (Boss Mountain Division)	534,522	Molybdenite concentrates, 1,402 tons containing 1,588,507 lb. of molybdenum						
Clinton Mining Division											
Nil											
Fort Steele Mining Division											
Sullivan mine	Kimberley	405	Cominco Ltd.	2,005,301	Lead concentrates, 148,276 tons; zinc concentrates, 195,687 tons; tin concentrates, 201 tons containing 318,999 lb. of tin; iron sinter, 62,862 tons	181	3,547,289	552,400	213,860,000	203,834,000	549,184
Golden Mining Division											
Ruth Vermont	Parson	430	Copperline Mines Ltd.	38,352	Lead concentrates, 340 tons; zinc concentrates, 5,567 tons	92	70,999	46,360	650,337	5,713,081	
Greenwood Mining Division											
Greyhound, Mother Lode	Greenwood	380	Greyhound Mines Ltd.	(1)	Copper concentrates, 499 tons	90	1,890	208,113			
Highland Bell mine	Beaverdell	385	Teck Corporation Ltd.	36,404	Lead concentrates, 1,947 tons; zinc concentrates, 306 tons; jig concentrates, 110 tons	332	637,797		512,816	580,323	2,592
Phoenix mine	Phoenix	375	The Granby Mining Co. Ltd., Phoenix Copper Division	887,133	Copper concentrates, 23,269 tons	14,306	134,298	12,690,954			
Marshall	Phoenix	376	San Jacinto Explorations Ltd.	177	Crude ore	277	402	1,041	4,364	466	
Kamloops Mining Division											
Bethlehem mine	Highland Valley	357	Bethlehem Copper Corp. Ltd.	5,625,999	Copper concentrates, 86,059 tons		154,000	54,101,424			

Liard Mining Division											
Magnum mine	Delano Creek	81	Churchill Copper Corp. Ltd.	177,069	Copper concentrates, 21,970 tons	—	—	13,461,513	—	—	—
Silver Queen (Magno)	Cassiar	57	Coast Silver Mines Ltd.	13	Crude ore	—	51	—	996	1,238	—
Lillooet Mining Division											
Bralorne mine	Bralorne	308	Bralorne Can-Fer Resources Ltd.	36,282	Bullion	20,021	3,506	—	—	—	—
Nanaimo Mining Division											
Bob (Bonanza)	Bonanza Lake		M.B.H. Developments Ltd	2,384	Crude ore	—	—	97,186	—	—	—
Island Copper mine	Port Hardy	320	Utah Mines Ltd.	1,040,608	Copper concentrates, 16,187 tons	2,733	13,503	7,200,000	—	—	—
Old Sport mine	Benson Lake	319	Coast Copper Co. Ltd.	295,684	Copper concentrates, 21,860 tons	5,523	42,101	10,413,928	—	—	—
Texada mine	Texada Island	251	Texada Mines Ltd.	1,200,292	Iron concentrates, 542,479 tons; copper concentrates, 9,626 tons	1,569	56,916	4,067,764	—	—	—
Nelson Mining Division											
Annex	Nelway	402	Reeves MacDonald Mines Ltd.	166,089	Lead concentrates, 2,537 tons; zinc concentrates, 25,962 tons	—	358,429	18,482	2,667,777	27,080,068	323,740
Burlington (Sheep Creek Camp)	Salmo	400	J. A. C. Ross, Vancouver	409	Siliceous ore	20	82	—	2,453	2,453	—
Invincible, East Dodger	Salmo, Iron Mountain	401	Canadian Exploration Ltd.	172,512	Tungsten concentrates, 1,095 tons containing 1,335,808 lb. of tungsten (WO_3)	—	—	—	—	—	—
Maple Leaf	Salmo		A. Matovich and W. Potapoff, Trail	76	Crude ore	1	190	—	1,062	1,973	—
Reeves MacDonald mine	Nelway	401	Reeves MacDonald Mines Ltd.	25,296	Lead concentrates, 515 tons; zinc concentrates, 1,996 tons	—	7,206	1,527	550,823	2,124,142	13,291
Reno (Sheep Creek Camp)	Salmo	400	R. G. Tjader, D. E. Tjader, and D. J. Endersby, Montrose	2,079	Crude ore	390	587	—	6,973	5,273	—
New Westminster Mining Division											
Pride of Emory mine	Hope	267	Giant Mascot Mines Ltd.	260,241	Nickel-copper concentrates, 14,487 tons containing 2,890,430 lb. of nickel and 113,545 lb. of cobalt	—	—	1,792,341	—	—	—
Nicola Mining Division											
Craigmont mine	Merritt	292	Craigmont Mines Ltd.	1,833,461	Copper concentrates, 75,441 tons; iron concentrates, 22,810 tons	753	—	40,093,792	—	—	—

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[1] Mine closed January 8, 1971.

Table 1—Metal Production, 1971 *(Continued)*

Property or Mine	Location of Mine	*See Page*	Owner or Agent	Ore Shipped or Treated	Product Shipped	Gross Metal Content					
						Gold	Silver	Copper	Lead	Zinc	Cadmium
Omineca Mining Division				Tons		Oz.	Oz.	Lb.	Lb.	Lb.	Lb.
Cronin mine	Smithers	178	Kindrat Mines Ltd.	216	Lead concentrates, 91 tons; zinc concentrates, 125 tons	14	11,731		108,431	159,441	1,885
Endako mine	Endako	165	Endako Mines Ltd.	9,051,000	Molybdenite concentrates, 3,021 tons; molybdenum trioxide, 5,809 tons; ferromolybdenum, 138 tons, total content, 9,126,026 lb. of molybdenum						
Granisle mine	Babine Lake	178	Granisle Copper Ltd.	2,314,682	Copper concentrates, 35,399 tons	10,509	102,030	23,327,272			
Pinchi Lake mine	Pinchi Lake	167	Cominco Ltd.	(1)	Mercury						
Silver Standard mine	Hazelton		Northwestern Midland Development Co. Ltd.	200	Lead concentrates, 32 tons; zinc concentrates, 9 tons; crude ore, 24 tons	19	12,460	497	26,190	21,865	92
Osoyoos Mining Division											
Brenda mine	Brenda Lake	288	Brenda Mines Ltd.	8,987,210	Copper concentrates, 86,142 tons; molybdenite concentrates, 4,258 tons containing 4,896,600 lb. of molybdenum	4,984	335,393	37,068,715			
Revelstoke Mining Division											
Mount Copeland mine	Revelstoke	425	King Resources Co.	60,314	Molybdenite concentrates, 890 tons containing 980,245 lb. of molybdenum						
Similkameen Mining Division											
Nil											
Skeena Mining Division											
British Columbia Molybdenum mine	Alice Arm	121	British Columbia Molybdenum Ltd.	2,476,175	Molybdenite concentrates, 4,096 tons containing 4,800,300 lb. of molybdenum						
Granduc mine	Stewart	34	Granduc Operating Co.	1,498,854	Copper concentrates, 69,439 tons	6,043	417,441	38,500,705			
Kay	Stewart	38	Silkine Silver Ltd.	1.60	Crude ore	0.1	239		64	94	
Tasu mine	Tasu Harbour	110	Wesfrob Mines Ltd.	2,004,744	Iron concentrates, 1,301,717 tons; copper concentrates, 30,051 tons	4,689	107,457	12,322,220			

Slocan Mining Division											
Lucky Thought	Silverton	408	Surfside Explorations Ltd.	127	Lead concentrates, 53 tons; tailings, 36 tons; crude ore, 38 tons	1	16,337	—	87,383	19,540	—
Arlington	Slocan	410	Arlington Silver Mines Ltd.	920	Crude ore	—	10,856	—	49,670	44,152	—
Best	Slocan	422	Thomas Eccles, Rossland	9	Crude ore	—	206	—	730	300	—
Bluebell mine	Riondel	412	Cominco Ltd.	280,343	Lead concentrates, 14,472 tons; zinc concentrates, 24,964 tons	79	281,799	298,680	29,328,000	23,364,000	111,984
Crown	Ainsworth	418	Dave Norcross, Nelson	58	Crude ore	—	1,190	—	2,000	3,381	—
Dublin Queen	New Denver	431	Inkot Silver Mines Ltd.	17	Crude ore	—	147	—	3,402	10,202	—
Enterprise	Slocan City	410	W. Wingert and L. M. Fried, New Denver	97	Crude ore	1	5,500	—	23,687	43,581	—
Freddy	Silverton		Van Hansen, New Denver	25	Crude ore	2	1,670	—	190	340	—
Homestake	Slocan City	411	Clarence Thickett, Slocan	8	Crude ore	2	311	—	64	32	—
Joyce	Slocan	411	Clarence Thickett, Slocan	10	Crude ore	18	2,300	—	265	245	—
Ottawa	Springer Creek	411	Pamicon Developments Ltd.	105	Crude ore	—	15,153	—	951	426	—
Republic	Slocan	411	Denu Mines & Development Ltd.	33	Crude ore	1	149	—	133	133	—
Silmonac (Minniehaha)	Sandon	408	Kam-Kotia and Burkham Joint Venture	39,154	Lead concentrates, 3,652 tons; zinc concentrates, 3,998 tons	—	681,407	—	4,734,805	4,875,873	33,721
Washington	Retallack–Three Forks	423	Larch Mining Ltd., W. H. McLeod, Silverton	1	Crude ore	—	167	—	1,965	65	—
Westmont	Silverton	410	Eastmont Silver Mines Ltd.	72	Crude ore	—	889	—	5,349	9,976	—
Trail Creek Mining Division											
Coxey mine	Rossland	403	Consolidated Canadian Faraday Ltd. (Red Mountain Mines Division)	191,715	Molybdenite concentrates, 959,244 tons containing 574,971 lb. of molybdenum	—	—	—	—	—	—
Vancouver Mining Division											
Britannia mine	Howe Sound	255	Anaconda Britannia Mines, Division of Anaconda American Brass Ltd.	720,964	Copper concentrates, 29,742 tons	—	93,485	17,213,630	—	—	—
Vernon Mining Division											
St. Paul	Monashee Mountain	431	W. Miller, Vernon	33	Crude ore	18	1,512	—	3,771	235	—
Victoria Mining Division											
Nil	—		—	—	—	—	—	—	—	—	—

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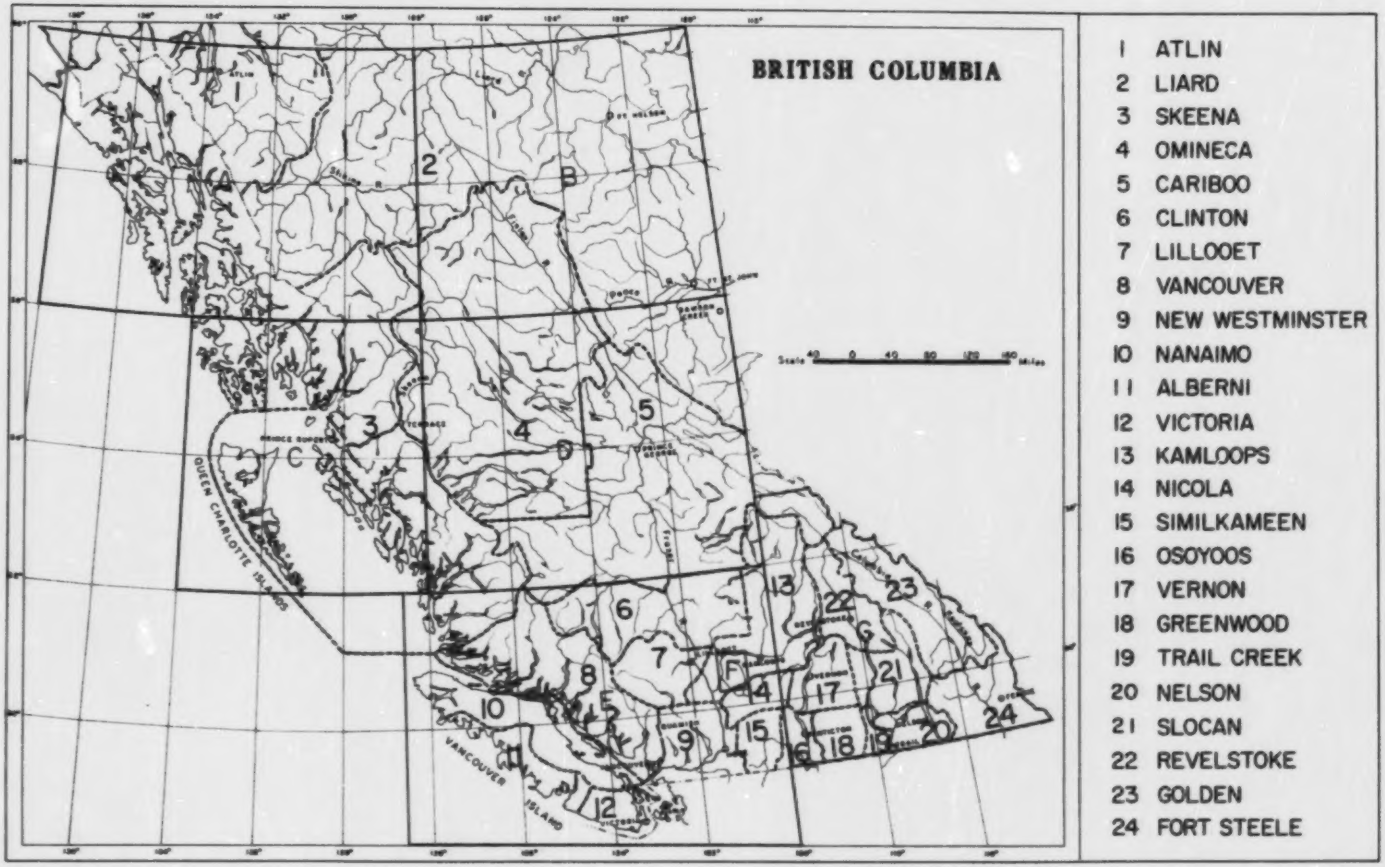
[2] Details confidential.


BRITISH COLUMBIA
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QUEEN CHARLOTTE ISLANDS
VANCOUVER ISLAND
PRINCE RUPERT
TERRACE
PRINCE GEORGE
DAWSON CREEK
FT. ST. JOHN
FT. NELSON
ATLIN
VICTORIA
Fraser
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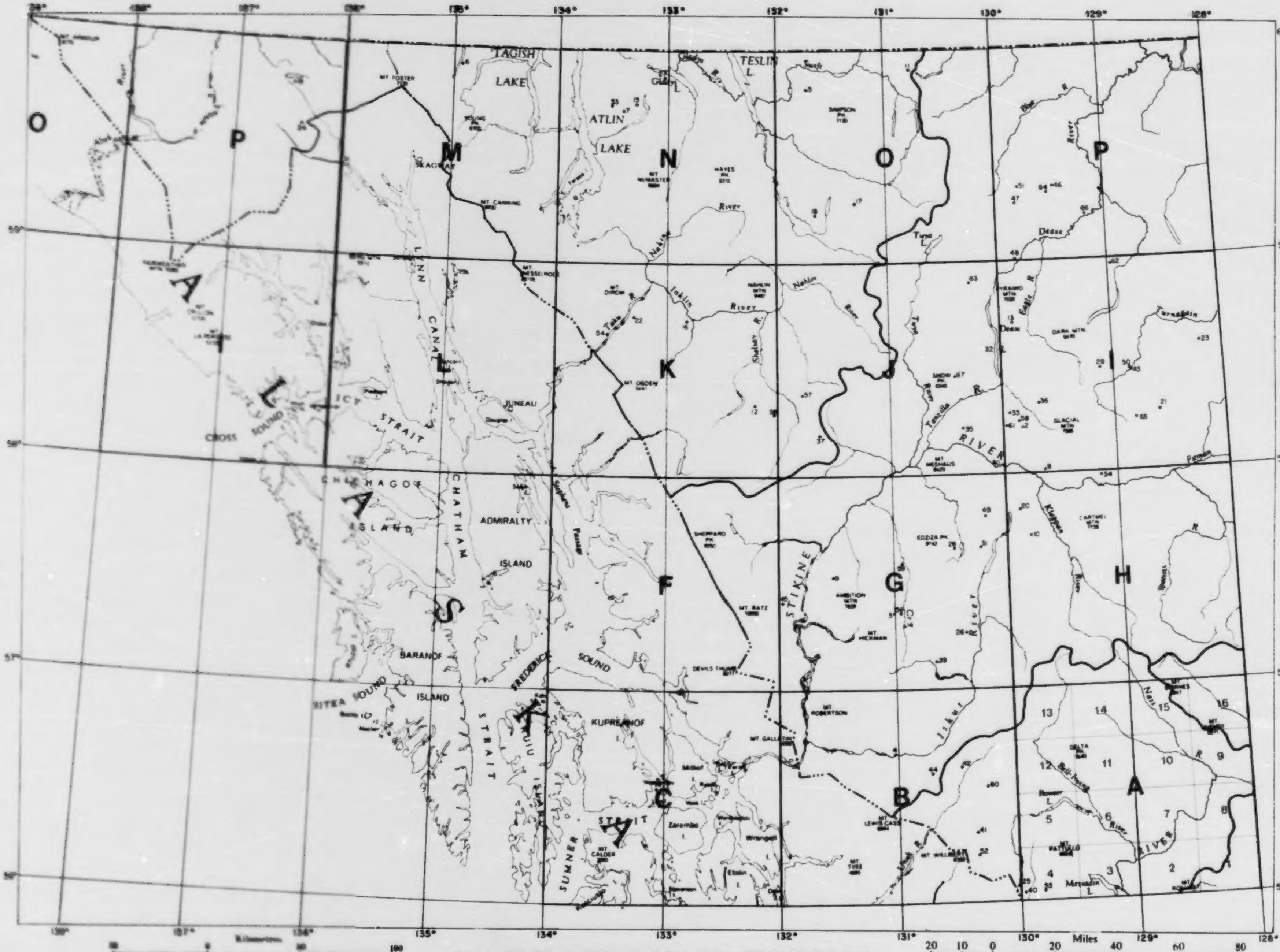
1 ATLIN
2 LIARD
3 SKEENA
4 OMINECA
5 CARIBOO
6 CLINTON
7 LILLOOET
8 VANCOUVER
9 NEW WESTMINSTER
10 NANAIMO
11 ALBERNI
12 VICTORIA
13 KAMLOOPS
14 NICOLA
15 SIMILKAMEEN
16 OSOYOOS
17 VERNON
18 GREENWOOD
19 TRAIL CREEK
20 NELSON
21 SLOCAN
22 REVELSTOKE
23 GOLDEN
24 FORT STEELE

Figure 1. Index map of mining divisions with outlines (in red) of Figures A to G.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JUNEAU
Douglas
LYNN
CANAL
CHATHAM
STRAIT
ICY STRAIT
CROSS SOUND
CHICHAGOF
ISLAND
ADMIRALTY
ISLAND
BARANOF
ISLAND
SITKA SOUND
FREDERICK
SOUND
KUPREANOF
SUMNER
STRAIT
Zarembo
Wrangell
Etolin
STIKINE
RIVER
Iskut
River
Nakina
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Inklin
River
Nahlin
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Klappan
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Meziadin
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Spatsizi
Eagle
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Taku
R
Kitsault
DARK MTN
GLACIAL MTN
EDZIZA PK
MT CALDER
MT LEWIS CASS
MT ROBERTSON
MT HICKMAN
MT RATZ
MT GALLATIN
DEVILS THUMB
SHEPPARD PK
AMBITION MTN
MT MESHAUS
CARTMEL MTN
SIMPSON PK
HAYES PK
MT McMASTER
NAHLIN MTN
MT DIRCOM
MT OSDEN
MT CANNING
MT FOSTER
YOUNG PK
PYRAMID MTN
SNOW PK
MT PATTULLO
DELTA PK
MT TYEE
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50
100

Figure A. INDEX MAP TO PROPERTIES IN NTS GRID DIVISION 104 AND PART OF 114

KEY TO PROPERTIES ON INDEX MAP, FIGURE A.

1. MOLLY, page 52.
2. BELL, page 44.
3. PEPSI, HICKS, BOY, page 38.
4. RAY, JOANN, GRACE, page 37.
5. TOP, page 55.
6. DICK, OLD, page 53.
7. ADERA, page 53.
8. MAT, page 43.
9. DOK, page 41.
10. SUS, page 42.
11. TAN, page 56.
12. MC, page 50.
13. JAY, page 451.
14. RUN, page 39.
15. SNAFU, page 53.
16. BWM, page 51.
17. SWAN, page 55.
18. IRV, PEN, page 54.
19. KELSAL, page 32.
20. ROSE, page 42.
21. WT, page 46.
22. MIKE, page 51.
23. RYE, page 47.
24. MILDRED, page 32.
25. SILBAK PREMIER MINE, page 33.
26. ME, ROG, page 40.
27. PIP, DIP, SIP, page 54.
28. SPECTRUM, page 41.
29. EAGLE, page 45.
30. BUD, page 48.
31. GJ, page 40.
32. BAK, WP, page 451.
33. KAY, KING, KO, page 45.
34. JOY, BOW, page 43.
35. DISCO, page 48.
36. OWL, page 45.
37. GO, G, page 48.
38. NORM, page 50.
39. LITTLE LES, page 37.
40. MC, page 33.
41. UP, page 35.
42. KAY, page 36.
43. TURN, page 46.
44. E & L, page 36.
45. BEN, page 38.
46. JOEM, RAIN, DAKO, page 57.
47. SILVER QUEEN (MAGNO), page 57.
48. SQE, page 56.
49. JO, page 42.
50. AGNES, page 46.
51. CASSIAR MINE, page 451.
52. GRANDUC MINE, page 34.
53. BIG CANYON (RUFFNER), page 54.
54. POTLATCH-BANKER, page 52.
55. ROOSEVELT, page 32.
56. SNO, BIRD (LIARD COPPER), page 39.
57. PET, page 49.
58. MOSS, page 44.
59. IN, page 58.
60. TED, RAY, page 36.
61. CROWN, page 44.
62. NIZ, page 47.
63. SHIELD, page 50.
64. PI, JOAN, page 57.
65. J, page 450.
66. ATAN, page 56.
67. MACK, page 49.

NORTHWEST BRITISH COLUMBIA
(NTS Division 104 and part of 114 Figure A)

TATSHENSHINI RIVER 114P

MILDRED (No. 24, Fig. A)

LOCATION: Lat. 59° 35.5′ Long. 136° 24.5′ (114P/9W)
ATLIN M.D. Two miles west of Seltat Peak near headwaters of Clinton Creek, at elevation 5,500 feet.

CLAIMS: MILDRED (Lot 213), JUNE, GEORGE, ICE, and ACE, totalling 55 claims.

ACCESS: Four miles by road from the Haines road.

OWNER: Eagle River Mines Ltd.

OPERATOR: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary, Alta.

METALS: Copper, iron.

DESCRIPTION: A skarn deposit in a pendant of metasedimentary rocks within Coast Range granitic intrusions is mineralized with magnetite, pyrite, chalcopyrite, and bornite.

WORK DONE: Geological and magnetometer surveys were made of the Mildred, June, and George claims and eight diamond-drill holes totalling 3,500 feet were drilled on the Mildred.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 28.

KELSAL (No. 19, Fig. A)

LOCATION: Lat. 59° 46.5′-48.5′ Long. 136° 28′-33′ (114P/15E, 16W)
ATLIN M.D. On the south side of Kelsall Lake.

CLAIMS: KELSAL 1 to 32, KELSALL 1 to 5 Fractions, KELSAL 6 Fraction.

ACCESS: Three miles east of Glacier camp (Mile 75) on the Haines road.

OPERATOR: PACIFIC PETROLEUMS LTD., 408, 580 Granville Street, Vancouver 2.

METALS: Copper, zinc.

WORK DONE: Geochemical soil samples were taken along 5 miles of line on the Kelsal 9, 13, 17, 21, and 25 claims. Five diamond-drill holes totalling 2,500 feet were drilled on Kelsal 10, 14, 18, and 24 claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 23.

BOWSER LAKE 104A

ROOSEVELT (No. 55, Fig. A) By B. M. Dudas

LOCATION: Lat. 56° 02′ Long. 129° 47′ (104A/4W)
SKEENA M.D. Ten miles northeast of Stewart on Bitter Creek.

CLAIMS: Thirty Crown-granted (MORGAN, LEAD COIL, ALBERTA, CREEK, RADIO, ORE HILL, MILLER, PONTIAC, ROOSEVELT, NORTHERN BELL, MAYOU) claims and SANDY (Lot 5589) which is now Mineral Lease M-147. TERRY 1 to 55 are held by location.

ACCESS: By four-wheel-drive vehicle from the Cassiar-Stewart road, following Bitter Creek, or by helicopter from Stewart.

OWNERS: Crest Silver Company Limited (wholly owned subsidiary of Crest Ventures Limited) and Ardo Mines Ltd. (by agreement).

OPERATOR: ARDO MINES LTD., 210, 890 West Pender Street, Vancouver 1.

METALS: Copper, gold, silver, lead, zinc.

DESCRIPTION: Mineralization consists of late quartz veins of variable width and extent. Sulphide minerals are mainly sphalerite, galena, and minor sulphosalts.

WORK DONE: The Silver adit was extended 60 feet and two 100-foot-long crosscuts were driven. The Copper adit was slashed to 7 by 7 feet and two crosscuts, 56 feet and 45 feet long, were completed. Seven BQ wireline holes from the Silver adit and five BQ wireline holes from the Copper adit were drilled.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 74, 75.

MC (No. 40, Fig. A)

LOCATION: Lat. 56° 02' Long. 129° 58' (104A/4W)
SKEENA M.D. Seven miles north of Stewart, along the ridge south of Mount Shorty Stevenson, between elevations of 3,000 and 5,200 feet.

CLAIMS: Mineral lease M-224 – MACK 2 and 3 Fractions (Lots 1809-10), JEAN (Lot 4196), MC (Lot 4406), MC No. 1 (Lot 4407), MC No. 1 Fraction (Lot 4409), ANNIVERSARY (Lot 4410), BONANZA (Lot 4411), PEERLESS 2 to 6 (Lots 4587-4591), PEERLESS Fraction (Lot 4592), PEER Fraction (Lot 4593); located claims – RIDGE 1 to 4, VAL 1 to 6, VAL 1 Fraction, YOUNG Fraction.

ACCESS: From Stewart by helicopter.

OWNER: MARLEX ENVIRO-SYSTEMS & RESOURCES LTD., 107, 325 Howe Street, Vancouver 1.

METALS: Silver, lead, zinc.

DESCRIPTION: The claims are underlain by coarse volcanic fragmental rocks having intermediate to basic compositions. Mineralization consists of a massive sulphide vein having a total strike length of 50 feet and a maximum width of 1.4 feet.

WORK DONE: Geological, geochemical, and electromagnetic surveys on the northwestern section of the claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 74; Assessment Report 3293.

ISKUT RIVER (104B)

SILBAK PREMIER MINE (No. 25, Fig. A)

LOCATION: Lat. 56° 03.5' Long. 130° 01' (104B/1E)
SKEENA M.D. On the west slope of Bear River Ridge about half a mile north of the Alaska-British Columbia boundary.

CLAIMS: Eighty-seven Crown-granted claims including the key CASCADE FALLS 4 and 8 claims.

ACCESS: By road from Stewart, 14 miles.

OWNER: Silbak Premier Mines Limited.

OPERATOR: THE GRANBY MINING COMPANY LIMITED, 507, 1111 West Georgia Street, Vancouver 5.

METALS: Gold, silver, copper, lead, zinc.

DESCRIPTION: Ten core holes drilled from the Big Missouri road on the Bell and Loser claims intersected weakly mineralized late quartz veins which cut the deformed epiclastic volcanic country rocks. This target area was outlined during 1971 by induced polarization methods. Three core holes drilled in the old mine area intersected cataclastically deformed volcanic conglomerates and tuffaceous sandstones in the hangingwall of the main Premier replacement zone.

WORK DONE: A Ronka-16 survey was made over 2 line-miles on the Bell claim and 18 diamond-drill holes totalling 6,157 feet were drilled on the Bell, Loser, Cascade Falls 5, Oakville 2, and Oakville Fraction.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 74.

GRANDUC MINE (No. 52, Fig. A)

By B. M. Dudas

LOCATION: Lat. 56° 13′ Long. 130° 21′ (104B/1W)
SKEENA M.D. The mine is at the head of the Leduc River, 25 miles north-northwest of Stewart, between elevations 1,800 and 4,000 feet. The concentrator and campsite are at Tide Lake. The townsite is at Stewart.

CLAIMS: One hundred and sixty-four Crown-granted and 186 recorded mineral claims.

ACCESS: Thirty-one miles by road from Stewart (through Hyder, Alaska) to the concentrator and Tide Lake camp, then by 11.6-mile tunnel to the mine.

OWNER: Granduc Mines, Limited.

OPERATOR: GRANDUC OPERATING COMPANY, 520, 890 West Pender Street, Vancouver 1; mine office, Box 69, Stewart.

METALS: Copper, silver (production shown in Table 1).

DESCRIPTION: Mining was concentrated in the upper A, F, C, and Ch ore zones during 1971. The ore, which comprises deformed massive sulphide lenses, is localized within mylonites and phyllonites of the South Unuk cataclasite zone. Ore minerals are mainly chalcopyrite, pyrrhotite, and pyrite with minor sphalerite and galena. Gangue includes quartz, carbonate, and country rock fragments. The ore zones are entirely localized within the upper member of the Lower Jurassic Unuk River Formation.

WORK DONE:

The mine and the concentrator operated on a three-shift, seven-day basis throughout the year, including tune-up period when reduced tonnage was handled. Copper concentrate is produced by flotation. The production of ore for the year came from the A, Ch, and C orebodies at the top of No. 1 Block. It was supplemented by development ore from both No. 1 and No. 2 Blocks. Approximately 75 per cent of the production ore came from transverse sub-level caving with the balance coming from longitudinal sub-level caving and open stopes.

The ramp to the top of No. 2 Block, north of No. 1 Block, was completed and sub-level development for longitudinal sub-level caving was started in the No. 2 Block. The orebodies in the No. 2 Block are known as the F, F_2, F_3, F_4, and F_5.

Total underground development during the year was 49,789 feet; drifts, crosscuts, and service ramps for trackless-type equipment, 39,611 feet; drifts and crosscuts for track-type equipment, 1,084 feet; raising with Alimak, 1,294 feet; slot raising at end of production heading, 2,921 feet; and raise boring, 4,443 feet. In addition, miscellaneous raising was 425 feet and miscellaneous excavations in waste was 228,678 cubic feet. Approximately 218,000 cubic yards of overburden above the B and B_2 orebodies in the No. 1 Block was stripped. Underground diamond drilling to determine the downward extension of the orebodies was continued throughout the year.

An additional 300-horsepower Joy Axivane fan and additional mine air-heating plant capacity was installed at the 3200 level ventilation adit to increase the fresh air intake to 410,000 cubic feet per minute.

Investigation of a fresh water source was continued and two shallow fresh water wells were added to the existing water supply system at Tide Lake Flats.

In co-operation with Federal Fisheries personnel ecological studies of the Bowser River were continued.

To reduce the effect of high turnover associated with northern operations and to teach safe work habits, a training school for trackless underground equipment operators was initiated and maintained throughout the year.

The Granduc mine-rescue team, after competing at Prince George, represented the Central B.C. Mine Rescue Association at the Provincial mine-rescue competition at Kelowna on June 12, 1971.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 68-73.

UP (No. 41, Fig. A)

LOCATION:	Lat. 56° 18'-19' Long. 130° 19'-22.5' (104B/8W) SKEENA M.D. Thirty-two miles north-northwest of Stewart, 2 miles east of the South Unuk River and 3 miles northwest of Mount Pearson.
CLAIMS:	UP 1 to 8.
ACCESS:	By helicopter from Stewart, 32 miles.
OWNER:	EL PASO MINING AND MILLING COMPANY, 500, 885 Dunsmuir Street, Vancouver 1.
METAL:	Copper.
DESCRIPTION:	Chalcopyrite occurs disseminated and in fractures in a pyritized silicified dacite, over an area 450 feet long and 250 feet wide.
WORK DONE:	Claims mapped geologically, scale 1 inch equals 50 feet.
REFERENCE:	Assessment Report 3344.

TED, RAY (No. 60, Fig. A)

LOCATION:	Lat. 56° 32' Long. 130° 15' (104B/9) SKEENA M.D. At approximately 5,000 feet elevation at the headwaters of Sulphurets and Mitchell Creeks, on the east side of the Unuk River.
CLAIMS:	TED 1 to 4, 6, 15 to 19, 31, 32, RAY 1 to 14, 19, 20, 22, 4 Fraction, RAN 7 to 14, 16, 18, 19, 40 to 50, LEE 1 to 4, MITCH 1 to 16, PATTY 1 to 5.
ACCESS:	By helicopter from Stewart, 40 miles.
OWNER:	GRANDUC MINES, LIMITED, 2009, 1177 West Hastings Street, Vancouver 1.
METALS:	Copper, molybdenum.
DESCRIPTION:	Disseminated sulphides occur in zone of intense but low-grade hydrothermal alteration, associated with regional faulting in andesitic and trachytic volcanic and syenitic intrusive rocks.
WORK DONE:	Trenching, 76.5 cubic yards and stripping, 4 cubic yards on Patty 1.
REFERENCE:	*B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 65.

KAY (No. 42, Fig. A)

LOCATION:	Lat. 56° 37' Long. 130° 28' (104B/9W) SKEENA M.D. Between 3,500 and 3,700 feet elevation, along Eskay Creek on the east slope of Prout Plateau, about 1.5 miles east of Tom Mackay Lake.
CLAIMS:	KAY 1 to 18, AU 1 to 4.
ACCESS:	By helicopter from Stewart, 55 miles.
OWNER:	STIKINE SILVER LTD., 705, 850 West Hastings Street, Vancouver 1.
METALS:	Silver, gold, lead, zinc (production shown in Table 1).
DESCRIPTION:	A quartz stockwork containing irregular masses of gold and silver-bearing sulphides occurs in deformed silicified sedimentary rocks.
WORK DONE:	Surface and underground workings mapped; surface geological mapping covering Kay 1 to 8 and AU 1 to 4; trenching, 450 feet on Kay 3 and 4.
REFERENCE:	*B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 64.

E & L (No. 44, Fig. A)

By B. M. Dudas

LOCATION:	Lat. 56° 35' Long. 130° 42' (104B/10E) LIARD M.D. At approximately 6,000 feet elevation on the south slope of Nickel Mountain at the head of Snippaker Creek, Iskut River tributary.
CLAIMS:	E & L 1 to 41, ELX 1 to 70.
ACCESS:	By air from Stewart, approximately 70 miles.
OWNER:	Nickel Mountain Mines Ltd.
OPERATOR:	SUMITOMO METAL MINING CANADA LTD., 1022, 510 West Hastings Street, Vancouver 2.
METALS:	Nickel, copper.
DESCRIPTION:	Disseminated pyrrhotite and chalcopyrite occur with minor pentlandite, pyrite, bornite, ilmenite, and secondary minerals in a small

stock of altered coarse-grained gabbro. Pyrrhotite dominates and pentlandite is the primary nickel mineral. Mineralization is localized at the intrusive contact with Lower Jurassic siltstones and apparently decreases inward toward the centre of the stock.

WORK DONE: A temporary camp was located near the portal to replace the lower camp which was destroyed by a snowslide during the winter. The airport at Snippaker Creek was lengthened from 2,180 feet to 3,800 feet, and two permanent buildings were put up near the airport. On the E & L claims, 2.4 miles of road was constructed. From underground four diamond-drill holes totalling 4,886 feet were drilled.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1965, pp. 43, 44; 1966, pp. 31-34; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 61.

RAY, JOANN, GRACE (No. 4, Fig. A)

LOCATION: Lat. 56° 41.5′-43′ Long. 131° 04′-07.5′ (104B/11E)
LIARD M.D. On the north bank of the Iskut River, 2 miles northwest of the mouth of Bronson Creek.

CLAIMS: RAY, JOANN, GRACE, totalling 68.

ACCESS: By helicopter from the Bob Quinn airstrip on the Cassiar-Stewart road, 35 miles.

OWNER: Iskut Silver Mines Ltd.

OPERATOR: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METALS: Copper, zinc, lead.

DESCRIPTION: Sheared and weakly foliated volcanic and sedimentary rocks of Permian and/or Triassic age are intruded by a stock of coarse-grained syenite porphyry. Mineral occurrences comprise quartz-carbonate veins mineralized with galena and sphalerite in fault zones and disseminated chalcopyrite in pyritized volcanic rocks.

WORK DONE: In 1970 a detailed magnetometer survey was done on Grace 6 and Joann 1 claims by the company and geological and geochemical surveys were done on the Grace, Ray, and Joann claims by Cerro Mining Company of Canada Limited. In 1971 Amax Potash Limited mapped the property geologically and collected soil, silt, and water samples for geochemical analysis.

REFERENCES: Assessment Reports 2963, 3002, 3374.

TELEGRAPH CREEK 104G

LITTLE LES (No. 39, Fig. A)

LOCATION: Lat. 57° 07′ Long. 130° 38′ (104G/2W)
LIARD M.D. At 4,000 feet elevation, east of More Creek and 6 miles south of Hankin Peak.

CLAIMS: LITTLE LES 1 to 24.

ACCESS: By helicopter from Bob Quinn Lake, 20 miles.

OWNER: NEWMONT MINING CORPORATION OF CANADA LIMITED, 1230, 355 Burrard Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Chalcopyrite and pyrite occur as disseminations in altered fragmental andesites and in adjacent intrusive rocks.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Little Les 3 to 6; geochemical stream sediment survey, approximately 100 samples covering Little Les 1 to 24; surface diamond drilling, two holes totalling 170 feet on Little Les 3.

BEN (No. 45, Fig. A)

LOCATION: Lat. 57° 24.6' Long. 131° 57' (104G/5W)
LIARD M.D. At 3,000 to 4,800 feet elevation between headwaters of Decker Creek and Pendant Glacier, 8 miles due west of Stikine River.
CLAIMS: BEN 1 to 39, BALD 1 to 22, 29 to 68, 71 to 78.
ACCESS: By helicopter from Telegraph Creek, 46 miles.
OWNER: Dictator Mines Ltd.
OPERATOR: CERRO MINING COMPANY OF CANADA LIMITED, 401, 1111 West Georgia Street, Vancouver 5.
METALS: Molybdenum (minor tungsten and silver).
DESCRIPTION: Mineralization occurs at the margin of the Tertiary Chutine quartz monzonite batholith in contact with Coast Range diorite and Permian limestone and phyllites. Molybdenite is found in quartz lenses, stockworks, and fracture fillings associated with zones of alteration and intense brecciation. Felsite and K-feldspar porphyry dykes crosscut the Chutine quartz monzonite.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Ben 1, 2, 4 to 11, 13 to 31, 34 to 36, 38, and 39; surface diamond drilling, five holes totalling 3,793 feet on Ben 1, 10, and 14.
REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1963, p. 8 (Decker Creek).

PEPSI, HICKS, BOY (No. 3, Fig. A)

LOCATION: Lat. 57° 18.5'-21' Long. 130° 57' - 131° 01.5' (104G/6E, 7W)
LIARD M.D. On Hickman Creek south of its junction with Schaft Creek, 44 miles south-southeast of Telegraph Creek.
CLAIMS: PEPSI 1 to 50, HICKS 1 to 12, BOY 1 to 48, NVM 1 to 38, BIG 1 to 24, SNO 1 to 32.
ACCESS: By aircraft from Telegraph Creek on Kinaskan Lake.
OWNER: NORTHERN VALLEY MINES LTD., 402, 717 West Pender Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The property is at the contact of the Hickman batholith with Permian volcanic rocks. Mineralization occurs within the volcanic rocks as disseminations, fracture fillings, and blebs of pyrite, bornite, chalcopyrite, and molybdenite.

WORK DONE: Magnetometer and geochemical surveys were made over about 50 claims lying adjacent to Hickman Creek.

REFERENCE: Assessment Report 2954.

RUN (No. 14, Fig. A)

LOCATION: Lat. 57° 17.5'-20.5' Long. 130° 52'-55.5' (104G/7W)
LIARD M.D. On Mess Creek, 43 miles south of Telegraph Creek.

CLAIMS: RUN, TIA MARIA, HOT PUNCH, totalling 86.

ACCESS: By helicopter from Telegraph Creek, Kinaskan Lake, or Schaft Creek airstrip.

OWNER: Coseka Resources Limited (formerly Coin Canyon Mines Ltd.).

OPERATOR: PHELPS DODGE CORPORATION OF CANADA, LIMITED, 404, 1112 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The claims are underlain by a northeasterly trending syenite porphyry intrusion which is in contact on the east with massive layered andesite volcanic rocks. Chalcopyrite, bornite, and chalcocite occur in feldspathized, carbonatized, and weakly silicified syenite.

WORK DONE: Geological mapping, 27,000 feet of line-cutting, and geochemical soil sampling were done by Coin Canyon Mines Ltd. (now Coseka Resources Limited) in 1970. In 1971 Phelps Dodge geologically mapped eight claims and parts of three others. A magnetometer survey was run over 20 miles of line.

REFERENCE: Assessment Report 3093.

SNO, BIRD (LIARD COPPER) (No. 56, Fig. A)

By B. M. Dudas

LOCATION: Lat. 57° 21' Long. 130° 56' (104G/7W)
LIARD M.D. Thirty-eight miles south of Telegraph Creek, east of the junction of Hickman Creek with Schaft Creek, between elevation 3,000 and 4,000 feet.

CLAIMS: Total claims held at year end was 1,032. The property was enlarged by staking 461 fractional and full-size mineral claims to the southeast, northeast, and north of the property and within the pre-existing claim blocks. The previous claims were located as the SNO, BIRD, NOV, ID, GAY, BUD, DIT, SUE, ASH, WIN, RUM, YON, EMU, NABS, BB, MESS, BARB.

ACCESS: Local transportation was from Terrace and Stewart by Trans Provincial Airlines three times weekly by Otter aircraft. Freight was handled by DC-3 aircraft of Trans Provincial Airlines from Terrace, and Harrison Airways from Smithers. A helicopter, based at the Schaft Creek camp by Vancouver Island Helicopters, was employed almost daily in servicing nearby camps and in support of prospecting and mapping activities.

OWNERS: Hecla Operating Company, Liard Copper Mines Ltd., and Paramount Mining Ltd.

OPERATOR: HECLA OPERATING COMPANY, 2009, 1177 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: Detailed description given in Geology, Exploration, and Mining in British Columbia, 1970, pages 49 to 57.

WORK DONE:

Work commenced on the property on May 27th and continued till October 18th. Diamond drilling of NQ size in 22 holes on the Liard Copper option totalled 19,366 feet and in 3 holes on the Paramount option totalled 2,687 feet. Ten of the drill holes were surveyed using 'down-the-hole' type gyroscopic equipment.

Following line-cutting, 20.1 miles of induced polarization surveys and magnetic surveys were completed in the Schaft Creek area; 68.9 line-miles of geological, geochemical, and magnetic surveys were completed in the Start Lake-Skeeter Lake area. On the newly staked claims in the northern part of the property, 64 line-miles were cut and surveyed by geological, geochemical, and magnetic methods.

A recording seismograph supplied and installed by the Dominion Observatory at the Schaft Creek camp was operated by Hecla on a year-around basis. Also, advanced magnetotelluric measuring equipment was operated by the Astrophysical Branch, Dominion Observatory, during the summer months. In co-operation with the Federal Department of Environment, weather records were kept all year.

A permanent base camp and airport suitable for planes as large as DC-3's were maintained at Schaft Creek with a watchman during the winter months.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 49-57.

ME, ROG (No. 26, Fig. A)

LOCATION: Lat. 57° 15'-17' Long. 130° 20.5'-25' (104G/8W)
LIARD M.D. On Ball Creek, 6 miles northwest of its junction with Iskut River.

CLAIMS: ME, ROG, totalling 60.

ACCESS: Six miles by helicopter west of the Cassiar-Stewart road at Burrage Creek.

OWNER: GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD., 736 Eighth Avenue SW., Calgary 2, Alta.

METALS: Copper, molybdenum.

DESCRIPTION: Molybdenite and minor chalcopyrite occur in a pyritic zone in volcanic and sedimentary rocks of Upper Triassic age.

WORK DONE: The claims were geologically mapped at a scale of 1 inch equals 100 feet and about 1,000 soil, silt, and rock samples were collected and analysed for copper and molybdenum.

REFERENCE: Assessment Report 3186.

GJ (No. 31, Fig. A)

LOCATION: Lat. 57° 39' Long. 130° 15' (104G/9)
LIARD M.D. At approximately 5,000 feet elevation 6 miles west of Kinaskan Lake.

CLAIMS: GJ, RED, N, totalling 162.

ACCESS: Six miles from Kinaskan Lake on the Cassiar-Stewart road.

OWNER: AMOCO CANADA PETROLEUM COMPANY LTD., 2160, 1055 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geological mapping of the GJ 122, 124, 149, and 150 claims; geochemical sampling of the GJ 122, 124, 149, and 150, N 11 to 16, and Red 20, 22, and 24; induced polarization survey along 20 miles of line on the N 9 to 32, 39 to 46 and Red 17 to 25 claims. Fourteen diamond-drill holes totalling 8,000 feet were drilled on the GJ 122, 124, 149, 151, N 18 to 20, and Red 17, 19.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 58.

SPECTRUM (No. 28, Fig. A)

LOCATION: Lat. 57° 40.5′-42.5′ Long. 130° 17′-30′ (104G/9W) LIARD M.D. At elevation 5,000 feet on the east side of Edziza Peak and 3 miles northwest of Kakiddi Lake.

CLAIMS: SPECTRUM, OWL, totalling 91.

ACCESS: By helicopter from Kinaskan Lake, 25 miles.

OWNER: Spartan Explorations Ltd.

OPERATOR: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary, Alta.

METALS: Copper, molybdenum.

DESCRIPTION: Disseminated pyrite, chalcopyrite, and molybdenite occur in an altered quartz monzonite pluton intrusive into Triassic volcanic rocks.

WORK DONE: An induced polarization survey was run over 4.4 miles of line.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 57.

DOK (No. 9, Fig. A)

LOCATION: Lat. 57° 30.5′-34′ Long. 131° 30.5′-35.5′ (104G/12E) LIARD M.D. Thirty miles southwest of Telegraph Creek, 6 miles south of the Stikine River on Strata Creek.

CLAIMS: DOK 1 to 6, 13 to 20, 24, 60, DON 1 to 12, PETE 1 to 8, THELMA 66 to 81, JON 1 to 24, JILL 1 to 6, PR 1 to 20, GU 1 to 12.

ACCESS: By helicopter from Schaft Creek, 40 miles.

OWNER: Empire Metals Corporation Ltd.

OPERATOR: THE SWISS ALUMINIUM MINING CO. OF CANADA LTD., Box 835, Station A, Vancouver 1.

METALS: Copper, molybdenum, lead, silver.

DESCRIPTION: Copper mineralization occurs as malachite and azurite with minor chalcopyrite and chalcocite. The minerals occur in tabular bodies and discontinuous veins up to 2 feet wide and 100 feet long and as thin fracture fillings.

WORK DONE: Geological mapping and soil sampling by Canadex Mining Corporation Ltd. covering Dok 1 to 36, EWK 1 to 4, LLK 1 to 4 in 1970. Claims and surface workings mapped; surface geological mapping, 1 inch equals 400 feet covering Don, Dok, Pete, Jon, and Thelma claims; geochemical soil survey, 1,000 samples covering Don, Dok, Pete, Jon, and Thelma claims; induced polarization survey, 17 line-miles covering Don 1 to 12, Dok 1 to 20, 24, Jon 1 to 24, Thelma 66 to 81, Pete 1 to 8, and Jill 1 to 6 claims; surface trenching, minor pits 5 feet by 5 feet on Dok and Don claims, all in 1971 by The Swiss Aluminium Mining Co. of Canada Ltd.

REFERENCES: Assessment Reports 3029, 3238.

JO (No. 49, Fig. A)

LOCATION: Lat. 57° 48.5' Long. 130° 12' (104G/16E)
LIARD M.D. At approximately 6,000 feet elevation in the central Stikine area, 2 miles south of Tsazia Mountain and 10 miles northwest of Kinaskan Lake.
CLAIMS: JO 5, 7 to 10, 27, 28, 30, 32, 50, 225 to 231, 233, 236, 337, 339, 341.
ACCESS: By helicopter from Eddontenajon, 10 miles.
OWNER: SUMITOMO METAL MINING CANADA LTD., 1022, 510 West Hastings Street, Vancouver 2.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs as fracture filling and dissemination in pyritized volcanic rock.
WORK DONE: Topography mapped; geochemical soil survey, 25 line-miles covering all claims.
REFERENCE: Assessment Report 3291.

SPATSIZI RIVER 104H

SUS (No. 10, Fig. A)

LOCATION: Lat. 57° 42.5'-44' Long. 129° 45.-47. (104H/12W)
LIARD M.D. Between Ealue and Kluea Lakes, 10 miles east of the Cassiar-Stewart road.
CLAIMS: SUS 45, 47, 49-55, 58-74, 101-113, 115.
ACCESS: By helicopter from the Cassiar-Stewart road.
OWNER: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.
METALS: Copper, molybdenum.
DESCRIPTION: The claims are underlain by a hornblende quartz diorite stock.
WORK DONE: A geochemical survey covering the 40 SUS claims was done during 1970.
REFERENCE: Assessment Report 3044.

ROSE (No. 20, Fig. A)

LOCATION: Lat. 57° 46.5'-48' Long. 129° 50'-53' (104H/13W)
LIARD M.D. On the northwest side of Ealue Lake.
CLAIMS: Thirty MFJ, four YME.
ACCESS: Six miles from the Cassiar-Stewart road at Eddontenajon Lake.

OWNER: Yukonadian Mineral Explorations Limited.

OPERATOR: GRANDUC MINES, LIMITED, 2009, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs as grains in quartz and calcite veins and as veinlets in andesite porphyry.

WORK DONE: Reconnaissance geological mapping and a geochemical soil and stream sediment survey were done during 1970.

REFERENCE: Assessment Report 3128.

JOY, BOW (No. 34, Fig. A)

LOCATION: Lat. 57° 57′ - 58° 01′ Long. 128° 59′ - 129° 17′ (104H/14E)
LIARD M.D. East of McBride River and northwest of Mount Sister Mary at elevations of 4,000 to 7,000 feet, 45 miles southeast of Dease Lake.

CLAIMS: JOY, BOW, BONUS, BOLD, BOLDEX, PAY, SEC, SUE, etc., totalling approximately 508.

ACCESS: By aircraft southeast from Dease Lake, 45 miles.

OWNER: Bowser Resources Ltd.

OPERATOR: EMPIRE METALS CORPORATION LTD., 202, 569 Howe Street, Vancouver 1.

METAL: Copper.

WORK DONE: Detailed geological survey on Bonus 1 to 4; geochemical survey, 5 line-miles; airborne magnetometer survey, 40 square miles; 966 feet of diamond drilling on Bonus 1, Boldex 1, and Bold 3.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 47; Assessment Reports 3203, 3237.

CRY LAKE 104I

JOY, BOW (No. 34, Fig. A)

LOCATION: Lat. 57° 57′ - 58° 01′ Long. 128° 59′ - 129° 17′ (104I/2W, 3E)

DESCRIPTION: Report in section 104H/14E.

MAT (No. 8, Fig. A)

LOCATION: Lat. 58° 00′-02′ Long. 129° 39′-42.5′ (104I/4E)
LIARD M.D. One mile north of the Stikine River and 10 miles east of the ferry on the Cassiar-Stewart road.

CLAIMS: MAT 1 to 26.

ACCESS: By helicopter, operating from a Silver Standard Mines Limited exploration base camp some 15 miles distant, near Eddontenajon.

OWNER: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

METALS: Copper, lead, zinc.

DESCRIPTION: Underlying rocks range from quartz monzonite on the north through gneisses and schists into metasedimentary rocks and ultimately serpentinized pyroxenites and gabbros on the south side of the claims. Finely disseminated chalcopyrite was found across a 300-foot width in the gneiss and both disseminated bornite and narrow stringers of massive bornite and chalcocite were found in the pyroxenite and gabbro.
WORK DONE: Ground magnetometer and geological surveys were carried out and 558 soil samples collected during 1970.
REFERENCE: Assessment Report 3028.

BELL (No. 2, Fig. A)

LOCATION: Lat. 58° 12′-15′ Long. 129° 50′-55′ (104I/4W)
LIARD M.D. On the west side of Gnat Creek, 16 miles southeast of Dease Lake.
CLAIMS: BELL 1 to 50.
ACCESS: By Cassiar-Stewart road from Watson Lake.
OPERATOR: CHAPPARAL MINES LTD., 328, 470 Granville Street, Vancouver 2.
METAL: Copper.
WORK DONE: Photogeological interpretation and airborne magnetometer survey covering all claims; induced polarization survey; geochemical soil survey, 45 line-miles; surface diamond drilling, two holes totalling 525 feet.
REFERENCE: Assessment Report 2889.

CROWN (No. 61, Fig. A)

LOCATION: Lat. 58° 12.4′-14.8′ Long. 129° 59′ - 130° 00.5′ (104I/4W)
LIARD M.D. At approximately 4,500 feet elevation 15 miles due south of south end of Dease Lake, north of Thenatlodi Mountain.
CLAIMS: CROWN 1 to 38.
ACCESS: By helicopter from Cassiar-Stewart road, 7 miles.
OWNER: UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, 407, 475 Howe Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Disseminated chalcopyrite and vein chalcopyrite with orthoclase and skarn alteration occur in Upper Triassic volcanic rocks adjacent to a monzonite intrusion.
WORK DONE: Magnetometer survey, 3 line-miles covering Crown 11-16, 33-38; induced polarization survey, 3 line-miles covering same claims.
REFERENCE: Assessment Report 3422.

MOSS (No. 58, Fig. A)

LOCATION: Lat. 58° 14′-16.5′ Long. 129° 50′-54′ (104I/4W, 5W)
LIARD M.D. At approximately 4,000 feet elevation on the west side of lower Gnat Lake, about 20 miles south of Dease Lake.

CLAIMS: MOSS, totalling 37.
ACCESS: The Cassiar-Stewart road is less than a mile east of the claims.
OWNER: LYTTON MINERALS LIMITED, 519, 602 West Hastings Street, Vancouver 2.
METAL: Copper.
WORK DONE: Percussion drilling, 47 holes totalling 4,615 feet on Moss 6, 32-38, 40, 55, 58, 60, 62, 66.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 38.

OWL (No. 36, Fig. A)

LOCATION: Lat. 58° 19.5' - 21' Long. 129° 36'-44' (104I/5E)
LIARD M.D. Four miles east of the Tanzilla River, 7 miles southeast of Tanzilla Butte.
CLAIMS: OWL 1 to 114.
ACCESS: By helicopter from Dease Lake, 12 to 15 miles.
OWNER: UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, 475 Howe Street, Vancouver 1.
METAL: Molybdenum.
WORK DONE: Geochemical soil survey, 457 samples; magnetometer survey, 14 line-miles; induced polarization survey, 14 line-miles covering 28 claims; road construction, 10 miles; surface diamond drilling, four holes totalling 1,070 feet on Owl 62, 77, 79, and 81.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 38; Assessment Report 3292.

KAY, KING, KO (No. 33, Fig. A)

LOCATION: Lat. 58° 15'-18' Long. 129° 53'-59' (104I/5W)
LIARD M.D. Near Gnat Lakes 3 miles west of the Cassiar-Stewart road, 12 miles southeast of Dease Lake.
CLAIMS: KAY, KING, KO, KIM, BOX, totalling 103.
ACCESS: Via the Cassiar-Stewart road to a point 2.7 miles south of the Tanzilla River bridge, then 3 miles by road suitable for four-wheel-drive vehicle.
OWNER: TANZILLA EXPLORATIONS LTD., 4, 558 Howe Street, Vancouver 1.
METAL: Copper.
WORK DONE: Geological mapping and 745 feet of diamond drilling were done on the central claims in the group. Line-cutting and an induced polarization survey were done on Kay 17-22, King 1, 3, 5, 72 and 2-5 and 7 Fractions, and KO 1, 2, 4, 6, 8.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 38; Assessment Reports 3204, 3205, 3372.

EAGLE (No. 29, Fig. A)

LOCATION: Lat. 58° 29'-31' Long. 129° 06'-10' (104I/6E)
LIARD M.D. Four miles southeast of Eaglehead Lake.
CLAIMS: EAGLE, totalling 84.

ACCESS: Twenty-eight miles by helicopter east from Dease Lake.
OWNER: Spartan Explorations Ltd.
OPERATOR: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary 1, Alta.
METALS: Copper, molybdenum.
DESCRIPTION: An altered quartz monzonite pluton contains disseminated chalcopyrite and molybdenite.
WORK DONE: A geochemical soil survey was made of the property.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1963, p. 6; Assessment Report 585.

WT (No. 21, Fig. A)

LOCATION: Lat. 58° 16'-19' Long. 128° 35'-39' (104I/7E)
LIARD M.D. On Letain Creek 6 miles east of Letain Lake.
CLAIMS: WT, totalling 52.
ACCESS: By floatplane from Dease Lake, or Watson Lake 120 miles.
OWNER: KATANGA MINES LTD., 31, 615 West Hastings Street, Vancouver 2.
METALS: Copper, silver, nickel, cobalt.
WORK DONE: Trenching, 8,760 cubic feet and stripping, 8,760 cubic feet on WT 55-57.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 40; Assessment Report 2131.

TURN (No. 43, Fig. A)

LOCATION: Lat. 58° 27'-29' Long. 128° 47'-55' (104I/7W)
LIARD M.D. Between 3,000 and 6,500 feet elevation on upper Turnagain River, 2 miles northeast of Hard Creek.
CLAIMS: TURN 1 to 122, COBALT, PYRRHOTITE.
ACCESS: By winter road, helicopter, or aircraft east from Dease Lake, 40 miles.
OWNER: Hard Creek Mines Limited.
OPERATOR: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
METALS: Copper, nickel.
DESCRIPTION: Chalcopyrite and pentlandite occur with pyrrhotite in a pyroxenite-peridotite body.
WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering all claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 40.

AGNES (No. 50, Fig. A)

LOCATION: Lat. 58° 29.5' Long. 128° 47'-55' (104I/7W, 10W)
LIARD M.D. Between 3,500 and 5,500 feet elevation 2 miles north of the confluence of Turnagain River and Flat and Hard Creeks, 40 air miles east of Dease Lake.
CLAIMS: AGNES 1 to 28, 32, SAND 1, 2, 4 to 6.
ACCESS: By helicopter or fixed-wing aircraft from Dease Lake, 40 miles.

OPERATOR: UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, 407, 475 Howe Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Sulphide mineralization consisting of lenses and irregular disseminations of pyrrhotite with very minor chalcopyrite occurs in medium to coarse-grained pyroxene-rich ultrabasic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering 28 claims; geochemical soil survey, 800 samples covering 24 claims; ground magnetometer survey, 25 line-miles covering 24 claims.
REFERENCE: Assessment Report 3206.

RYE (No. 23, Fig. A)

LOCATION: Lat. 58° 35.2' Long. 128° 12.3' (104I/9E)
LIARD M.D. At elevation 5,500 feet on the north side of an easterly flowing tributary of Cassiar River.
CLAIMS: RYE, totalling 72.
ACCESS: By helicopter from Watson Lake, 150 miles, or by pontoon-equipped aircraft which can land on Hottah Lake.
OWNER: CONWEST EXPLORATION COMPANY LIMITED, 1001, 85 Richmond Street West, Toronto 1, Ont.
METAL: Tungsten.
DESCRIPTION: The claims are underlain by a succession of Cambrian and Ordovician metasedimentary rocks in a roof pendant surrounded on three sides by biotite quartz monzonite and granodiorite. On the Rye 81 and 90 claims a 3-foot northeasterly striking chloritized and silicified skarn zone containing disseminated scheelite outcrops for a length of 100 feet.
WORK DONE: Geological mapping at a scale of 1 inch equals 200 feet was done on the Rye 81, 83, 88, and 90 claims and 214 systematic soil samples taken from the same claims were analysed for tungsten.
REFERENCE: Assessment Report 3213.

NIZ (No. 62, Fig. A)

LOCATION: Lat. 58° 58'-59' Long. 128° 56.5' (104I/14E, 15W)
129° 01'
LIARD M.D. Seven miles northeast of Beale Lake, on Zinc Creek.
CLAIMS: NIZ, totalling 40.
ACCESS: By helicopter.
OWNER: J.J.A. ALTENBURG, 3429 Worthington Drive, Vancouver 12.
WORK DONE: Line-cutting was done on NIZ 23, 25, 27, 29, 31, and 35.
REFERENCE: Assessment Report 3404.

BUD (No. 30, Fig. A)

LOCATION: Lat. 58° 02.5′ Long. 130° 01.5′ (104J/1E)
LIARD M.D. On the north side of the Stikine River, 5 miles west of the Cassiar-Stewart road.
CLAIMS: Five BUD.
ACCESS: By Cassiar-Stewart road.
OWNER: BRITISH NEWFOUNDLAND EXPLORATION LIMITED, One Westmount Square, Montreal 216, P.Q.
METAL: Copper.
DESCRIPTION: Pyrite and chalcopyrite occur in fractures in silicified andesite.
WORK DONE: Five claims mapped geologically and soil samples collected along 2 miles of line.

CROWN (No. 61, Fig. A)

LOCATION: Lat. 58° 12.4′-14.8′ Long. 129° 59′ - 130° 00.5′ (104J/1E)
Report on this property in section 104I/4W.

DISCO (No. 35, Fig. A)

LOCATION: Lat. 58° 13′ Long. 130° 20′ (104J/1W)
LIARD M.D. At 4,400 feet elevation between the headwaters of Pallen and Itsillitu Creeks, 37 miles northwest of Telegraph Creek.
CLAIMS: DISCO 1 to 95, CHOPPER 1 to 35.
ACCESS: By helicopter from Stikine Crossing, 20 miles.
OWNER: NEWMONT MINING CORPORATION OF CANADA LIMITED, 1230, 355 Burrard Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Copper and molybdenum mineralization occurs as fracture fillings and disseminations within granodiorite and in volcanic rock near the intrusive contact.
WORK DONE: Induced polarization survey, 14 line-miles covering Disco 21-26, 41, 43, 45, 69, 70.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 48.

GO, G (No. 37, Fig. A)

LOCATION: Lat. 58° 12′-16′ Long. 131° 44′-53′ (104J/4W)
ATLIN M.D. Between 2,200 and 5,100 feet elevation along Hackett River and the north side of Kaketsa Mountain, 30 air miles northwest of Telegraph Creek.
CLAIMS: GO 85 to 108, G 1 to 20, CAR 1 to 16, BONE 1 to 12, CU 1 to 90.
ACCESS: By helicopter from Dease Lake.
OWNERS: Skyline Explorations Ltd. and Maryland Natural Resources Corp. Ltd.
OPERATOR: MARYLAND NATURAL RESOURCES CORP. LTD., 355 Fourth Avenue SW., Calgary Place, Calgary, Alta.

METAL: Copper.

DESCRIPTION: Chalcopyrite with minor pyrite occurs as disseminations and fracture fillings in a highly altered monzonite-andesite contact zone.

WORK DONE: Topography and surface workings mapped; surface geological mapping, 1 inch equals 400 feet covering Go, G, and Car claims and 1 inch equals 1,000 feet covering Cu claims; geochemical soil survey, 20 line-miles covering Go, G, and Car claims; ground magnetometer survey, 22 line-miles and induced polarization survey, 14.3 line-miles covering Go and Car claims; trenching, 425 feet on Go claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 32; Assessment Reports 3295, 3296, 3514, 3515, 3516.

PET (No. 57, Fig. A)

LOCATION: Lat. 58° 23′ Long. 131° 47′ (104J/5W)
ATLIN M.D. At approximately 3,700 feet elevation north of Ketchum Lake on Dudidontu River, 65 miles west of Dease Lake.

CLAIMS: PET 1 to 91, PET 69 Fraction.

ACCESS: By helicopter from Dease Lake, 65 miles.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Chalcopyrite-hematite mineralization occurs in fractured and brecciated syenite, intrusive into andesitic volcanic rocks and partially covered by Tertiary volcanic rocks.

WORK DONE: Reconnaissance geological mapping, 1 inch equals 1,000 feet covering entire group; geochemical survey, 25 line-miles covering central claims; trenching, approximately 150 feet on Pet 37 and 39.

MACK (No. 67, Fig. A)

LOCATION: Lat. 58° 27.2′ Long. 130° 26.4′ (104J/8W)
LIARD M.D. Between 5,000 and 6,200 feet elevation on Snow Peak, 15 miles due west of south end of Dease Lake.

CLAIMS: MACK 1 to 28.

ACCESS: By helicopter from Dease Lake, 15 miles.

OWNER: TOURNIGAN MINING EXPLORATIONS LTD., 730, 535 Thurlow Street, Vancouver 5.

METALS: Molybdenum, copper, tungsten (minor tin).

DESCRIPTION: Molybdenite, chalcopyrite, and scheelite occur in quartz veinlets and disseminated in a quartz monzonite stock that intrudes Lower Jurassic metasedimentary rocks.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals one-half mile covering Mack 1-28; geochemical soil survey, 7 line-miles covering Mack 1-14.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 37; Assessment Report 3207.

SHIELD **(No. 63, Fig. A)**

LOCATION:	Lat. 58° 53′-55′ Long. 130° 15′-17′ (104J/16W) LIARD M.D. At approximately 4,000 feet elevation 8 miles northwest of north end of Dease Lake, one-half mile east of Beaver Creek and one-quarter mile east of Slough Mountain.
CLAIMS:	SHIELD 1 to 206.
ACCESS:	By helicotper from the Cassiar-Stewart road, 8 miles.
OWNER:	UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, 407, 475 Howe Street, Vancouver 1.
METALS:	Molybdenum (copper).
DESCRIPTION:	Porphyry-type molybdenum deposit; molybdenite and minor chalcopyrite in quartz seams in fractured quartz monzonite adjacent to a northwest fault structure; intense sericite with minor orthoclase and biotite alteration.
WORK DONE:	Geochemical soil survey, 1,376 samples covering Shield 1-12, 15-32, 35-52; magnetometer survey, 18 line-miles covering Shield 1-6, 15-26, 35-46; induced polarization survey, 18 line-miles covering same claims as magnetometer survey; surface diamond drilling, five holes totalling 2,012 feet on Shield 22, 37, 39, 41.
REFERENCE:	Assessment Report 3423.

TULSEQUAH 104K

NORM **(No. 38, Fig. A)**

LOCATION:	Lat. 58° 17.3′ Long. 132° 02.5′ (104K/8E) ATLIN M.D. Forty-two miles northwest of Telegraph Creek, 4 miles east of the Samotua River at an elevation of 2,500 feet.
CLAIMS:	NORM 1 to 22.
ACCESS:	By helicopter from Telegraph Creek.
OWNER:	SKYLINE EXPLORATIONS LTD., 1212, 1177 West Hastings Street, Vancouver 1.
METALS:	Copper, molybdenum.
DESCRIPTION:	The claims are underlain by Triassic volcanic and related sedimentary rocks and are intruded by small monzonite stocks believed to be Tertiary in age. Chalcopyrite and molybdenite occur in the more altered areas of the monzonite intrusion.
WORK DONE:	Geochemical survey on Norm 7-10; 20 silt samples and 82 soil samples collected.
REFERENCES:	Assessment Reports 476 (Fae), 3297.

MC **(No. 12, Fig. A)**

LOCATION:	Lat. 58° 21′-22′ Long. 132° 11′-14.5′ (104K/8E) ATLIN M.D. Forty-five miles northwest of Telegraph Creek, 2 miles east of Tatsamenie Lake.
CLAIMS:	MC, totalling 124.

ACCESS: By floatplane to Tatsamenie Lake.

OWNER: Skyline Explorations Ltd.

OPERATOR: BRITISH NEWFOUNDLAND EXPLORATION LIMITED, One Westmount Square, Montreal 216, P.Q.

METALS: Copper, molybdenum.

DESCRIPTION: The property is located over a highly altered part of a granodiorite intrusion and partly over roof pendants of sedimentary and volcanic rocks. Quartz veins cutting the sedimentary and volcanic rocks are mineralized with galena, chalcopyrite, and stibnite. Chalcopyrite and molybdenite are associated with extensive pyritization and epidote, chlorite, actinolite alteration of the granodiorite.

WORK DONE: Geochemical soil sampling was done by Skyline Explorations Ltd. in 1970; 318 samples were collected to determine where copper and molybdenum mineralization were present in the granodiorite pluton. In 1971 the claims were mapped geologically and some additional soil sampling was done. Trenching totalled 1,100 cubic yards.

REFERENCE: Assessment Report 3075.

BWM (No. 16, Fig. A)

LOCATION: Lat. 58° 44'-45' Long. 132° 53'-54' (104K/10W)
ATLIN M.D. One and a half miles north of King Salmon Lake.

CLAIMS: BARB 1 to 8.

ACCESS: By aircraft from Atlin, 60 miles to the north.

OPERATOR: MORESBY MINES LIMITED, 1110, 1055 West Hastings Street, Vancouver 1.

METALS: Copper, silver.

DESCRIPTION: Chalcopyrite occurs in a breccia pipe as massive irregular fragments or irregular replacements within fragments. Sphalerite, pyrrhotite, and stibnite occur with the chalcopyrite in minor amounts.

WORK DONE: Geological mapping and reconnaissance geochemical sampling.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1950, pp. 75-76; Assessment Reports 586, 1171, 3208.

MIKE (No. 22, Fig. A)

LOCATION: Lat. 58° 44'-45' Long. 133° 15'-19' (104K/11W)
ATLIN M.D. At elevation 4,000 feet at the head of Red Cap Creek, 12 miles northeast of Tulsequah.

CLAIMS: MIKE 1 to 32 (formerly RED CAP).

ACCESS: From Tulsequah, 12 miles by helicopter.

OPERATOR: CORDERO MINING CORPORATION, 1475, Two Bentall Centre, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: Bleached and silicified Stuhini volcanic rocks near the margin of a hornblende biotite stock contain disseminated pyrite and quartz veinlets mineralized with small amounts of chalcopyrite and molybdenite.

WORK DONE: Geological mapping at a scale of 1 inch equals 100 feet and six X-ray drill holes totalling 88 feet were done on the Mike 7.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1931, p. 63; *Geol. Surv., Canada*, Mem. 248, p. 70

POTLATCH-BANKER (No. 54, Fig. A)

By B. M. Dudas

LOCATION: Lat. 58° 40' Long. 133° 32' (104K/12W)
ATLIN M.D. On the east side of Tulsequah River about 3 miles north of the junction of the Taku and Tulsequah Rivers.

CLAIMS: Seventy-five Crown-granted claims including the JANET 1 to 8 and the JOKER claims known as the BANKER Group.

ACCESS: By aircraft or boat from Juneau, Alaska, or by aircraft from Atlin and Whitehorse.

OWNER: NEW TAKU MINES LIMITED, 1326, 925 West Georgia Street, Vancouver 1.

METALS: Gold, silver, copper, lead, zinc.

DESCRIPTION: The showings are on the northeast side of the Tulsequah River, mostly under heavy overburden. The mineralization is mainly sphalerite and galena with minor tetrahedrite, chalcopyrite, arsenopyrite, and stibnite, and abundant pyrite.

WORK DONE: Work was started on May 18th and the camp closed at the end of October. Trenching was done on the Joker Crown grant and the road and mill were rehabilitated on the Black Diamond Crown grant. Four trenches completed during past years were deepened and lengthened and three new trenches up to 80 feet long and 30 feet deep were cut. In addition, maintenance work was done on the Polaris-Taku mill, concentrator plant, and townsite. The roads were reopened from the plant to the Tulsequah Chief property, and the airport and docking facilities were improved.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1956, pp. 12, 13; 1968, p. 23 (Janet, Joker); *Geol. Surv., Canada*, Mem. 148.

SKAGWAY 104M

MOLLY (No. 1, Fig. A)

LOCATION: Lat. 59° 14'-16' Long. 134° 08'-12' (104M/1E)
ATLIN M.D. On the south side of Willison Bay, west of Hoboe Creek.

CLAIMS: MOLLY, FAYE, totalling 68.

ACCESS: By boat or aircraft from Atlin, about 28 miles.

OWNER: COMINCO LTD., 1155 West Georgia Street, Vancouver 5.

METALS: Molybdenum, copper.

DESCRIPTION: Molybdenite and chalcopyrite are disseminated in and associated with quartz veins in alaskite and granodiorite. Some mineralization is in breccia zones. There is some associated sericitic alteration.

WORK DONE: Rock samples for trace element analyses were collected along about 15 miles of line covering all the claims.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 23, 26; Assessment Report 2755.

DICK, OLD (No. 6, Fig. A)

LOCATION: Lat. 59° 54′-56.5′ Long. 134° 53′-57′ (104M/15W)
ATLIN M.D. On the east shore of Bennett Lake, near Pavey Station.
CLAIMS: OLD, DICK, totalling 46 (formerly SILVER QUEEN).
ACCESS: By rail from Whitehorse, Y.T., about 60 miles.
OWNER: PREMIER RESOURCES LTD. (formerly Premier Mining Corporation Ltd.), 818, 510 West Hastings Street, Vancouver 2.
METALS: Copper, silver.
DESCRIPTION: Pyrite, chalcopyrite, and malachite occur along the contact of an altered intrusive with phyllite, marble skarn, and volcanic rocks of the Laberge Group.
WORK DONE: Surface geological mapping was done over all the claims; 326 feet of trenching was done on the Old 5 and Dick 6.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 23; Assessment Report 2681.

ATLIN 104N

SNAFU (No. 15, Fig. A)

LOCATION: Lat. 59° 41.5′-43.5′ Long. 133° 15′-17′ (104N/11W)
ATLIN M.D. East of Ruby Creek and southeast of the head of Cracker Creek.
CLAIMS: SNAFU, SALLY, totalling 66.
ACCESS: From Atlin by road to Ruby Creek.
OPERATOR: ADANAC MINING AND EXPLORATION LTD., 910A, 1111 West Hastings Street, Vancouver 1.
WORK DONE: The geology of the claims was mapped at a scale of 1 inch equals 1,000 feet.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 29; Assessment Reports 2710, 3373.

ADERA (No. 7, Fig. A)

LOCATION: Lat. 59° 42.5′ Long. 133° 24.2′ (104N/11W)
ATLIN M.D. Between elevations of 4,700 and 5,100 feet on upper Ruby Creek.
CLAIMS: ADERA, KEY, RU, PACIFIC, BOY, NI, ZAP, NEW, RAY, totalling 118.
ACCESS: Twenty-one miles by road from Atlin via Pine Creek, Surprise Lake, and Ruby Creek.

OWNER: ADANAC MINING AND EXPLORATION LTD., 910A, 1111 West Hastings Street, Vancouver 1.

METALS: Molybdenum, tungsten.

WORK DONE: Eight diamond-drill holes totalling 2,812 feet were drilled on the Adera claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, pp. 29-35; 1970, p. 28.

BIG CANYON (RUFFNER) (No. 53, Fig. A)

By B. M. Dudas

LOCATION: Lat. 59° 44' Long. 133° 31.5' (104N/12E)
ATLIN M.D. At elevations of 3,500 to 6,000 feet on Mount Vaughan, on Fourth of July Creek, 10 miles northeast of the Atlin road.

CLAIMS: Fifty-seven recorded and 28 Crown-granted claims covering and surrounding the old ATLIN-RUFFNER mine and the RUFFNER, BIG CANYON, and other groups.

ACCESS: Eighteen miles by road north of Atlin, 10 miles east of Fourth of July Creek.

OWNER: TURISMO INDUSTRIES LTD. (formerly Interprovincial Silver Mines Ltd.), 1300, 355 Burrard Street, Vancouver 1.

METALS: Silver, lead, zinc.

WORK DONE: The property was closed during 1970. In 1971 the mining equipment was removed and sold.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 28.

PIP, DIP, SIP (No. 27, Fig. A)

LOCATION: Lat. 59° 51.8' Long. 133° 04.5' (104N/14E)
ATLIN M.D. At about elevation 4,500 feet on the south side of Gladys Lake, 30 air miles northeast of Atlin.

CLAIMS: PIP, DIP, SIP, JOY, DELL, totalling 60.

ACCESS: Thirty-two miles by rough road from the Atlin road at Mile 46.

OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METAL: Molybdenum.

DESCRIPTION: A quartz vein stockwork mineralized with molybdenite is in a hornfelsed aureole surrounding an alaskite ring dyke complex.

WORK DONE: The Pip claims were geologically mapped at 1 inch to 100 feet, 5,500 lineal feet of trenching was done, and five diamond-drill holes totalling 2,421 feet were drilled on the Pip 1, 3 and Sip 15, 17.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 27.

JENNINGS RIVER 104O

IRV, PEN (No. 18, Fig. A)

LOCATION: Lat. 59° 18'-21' Long. 131° 40'-44' (104O/5E)
ATLIN M.D. In the Atsutla Range at the head of Christmas Creek, 8 miles west of Kedahda Lake.

CLAIMS: IRV 1 to 12, 15 to 38, 57 to 64, 69, 70, 95 to 99, 139 to 141; PEN 1 to 4, 11 to 16.
ACCESS: By helicopter from Dease Lake, 90 miles.
OWNER: New Jersey Zinc Exploration Company (Canada) Ltd.
OPERATOR: EL PASO MINING AND MILLING COMPANY, 500, 885 Dunsmuir Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: The claims are underlain by hornblende syenodiorite, part of the Christmas Creek batholith. Chalcopyrite, bornite, galena, and molybdenite occur as plates in thin quartz-orthoclase veins commonly with tourmaline and epidote as accessory minerals.
WORK DONE: Geological mapping and reconnaissance geochemical sampling.
REFERENCES: Assessment Reports 3209, 3210.

SWAN (No. 17, Fig. A)

LOCATION: Lat. 59° 15'-18' Long. 131° 17.5'-21' (104O/6W)
ATLIN M.D. South of the Jennings River at the head of Tahoots Creek.
CLAIMS: SWAN 1 to 80.
ACCESS: By helicopter from Dease Lake, 75 miles.
OWNER: UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, 407, 475 Howe Street, Vancouver 1.
METAL: Molybdenum.
DESCRIPTION: Disseminated molybdenite occurs in quartz veins in fractured granite porphyry.
WORK DONE: Electromagnetic and magnetometer surveys were made along 19.5 miles of line, and 223 samples were collected for a geochemical soil survey.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 31; Assessment Reports 3211, 3212.

TOP (No. 5, Fig. A)

LOCATION: Lat. 59° 47'-50.5' Long. 131° 38'-44' (104O/13E)
ATLIN M.D. Nine miles south of Mile 755 on the Alaska highway, 6 miles east of Swift Lake.
CLAIMS: TOP, totalling 174.
ACCESS: By helicopter from the Alaska highway or by tote road from Mile 755.
OWNER: BOLIVAR MINING CORPORATION LTD., 1101, 510 West Hastings Street, Vancouver 2.
WORK DONE: The following work was done during 1970: road construction, 10.6 miles; line-cutting, 72.7 miles; geochemical soil survey, 2,430 samples; magnetometer, induced polarization, and geological surveys.
REFERENCES: Assessment Reports 2976, 3014.

TAN (No. 11, Fig. A)

LOCATION: Lat. 59° 51'-52' Long. 130° 42'-44' (104O/15E)
ATLIN M.D. Two miles south of Plate Lake and 4 miles west of Tootsee Lake.
CLAIMS: TAN 1 to 12.
ACCESS: By aircraft from the Alaska highway.
OPERATOR: WYE LAKE RESOURCES LTD., 458, 890 West Pender Street, Vancouver 1.
METAL: Antimony.
DESCRIPTION: The claims are underlain by quartzites, argillites, and limestone. On the Tan 3 stibnite occurs disseminated in a quartz vein that has an average thickness of 8 inches. The average grade of four representative samples was 7.6 per cent stibnite.
WORK DONE: Geological mapping and trenching were done during 1970.
REFERENCE: Assessment Report 3045.

McDAME 104P

ATAN (No. 66, Fig. A)

LOCATION: Lat. 59° 12' Long. 129° 12' (104P/3E)
LIARD M.D. At approximately 2,300 feet elevation 1.5 miles east of McDame Post on Dease River.
CLAIMS: ATAN 1 to 6, AUGUST 1 to 6, ADAIR 1 to 8, WOLF 1, 3, 5, 7, FOX 1, SKI 1 to 18, A, B, C Fractions.
ACCESS: By four-wheel-drive vehicle from Goodhope Lake on the Cassiar-Stewart road, 11 miles.
OWNER: TOURNIGAN MINING EXPLORATIONS LTD., 703, 535 Thurlow Street, Vancouver 5.
METALS: Silver, lead, copper, zinc, barite.
DESCRIPTION: Mineralization occurs as replacement of and fracture filling in Lower Cambrian Atan Group limestone.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet on Ski 3-6.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 37.

SOE (No. 48, Fig. A)

LOCATION: Lat. 59° 15' Long. 129° 50.5' (104P/4W)
LIARD M.D. At 5,000 feet elevation 4 miles due south of Cassiar, 2 miles east of Limestone Peak.
CLAIMS: SOE 9 to 18, KON 1 to 15, KON 1 to 3 Fractions, WEST 1 to 14.
ACCESS: By road suitable for four-wheel-drive vehicles from Cassiar, 4 miles.
OWNER: New Jersey Zinc Exploration Company (Canada) Ltd.
OPERATOR: LEVANA EXPLORATION COMPANY, 1101, 510 West Hastings Street, Vancouver 2.
METAL: Molybdenum.

DESCRIPTION: A multi-phase monzonitic mass along the eastern border of the Cassiar batholith contains molybdenite and pyrite, locally disseminated, but mostly associated with quartz in tiny veinlets along one major and one or more minor directions of fracturing. The best mineralization is near a specific phase contact, where the rock is more highly fractured and altered to K-feldspar, clay, and talc.

WORK DONE: Drill access road constructed; surface diamond drilling, four holes totalling 3,163 feet on SQE 15 and Kon 1 Fraction.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 35.

SILVER QUEEN (MAGNO) (No. 47, Fig. A)

By A. D. Tidsbury

LOCATION: Lat. 59° 15.5' Long. 129° 49.6' (104P/5W)
LIARD M.D. At 5,000 feet elevation approximately 2.7 miles south of the community of Cassiar, near the headwaters of Marble Creek.

CLAIMS: MAGNO 1 to 4, MAGNO 1 to 3 Fractions, JEAN 1, 2, CREST 1, 2.

ACCESS: By road up Marble Creek from Cassiar, approximately 4 miles.

OWNER: COAST SILVER MINES LTD., 2nd Floor, 890 West Pender Street, Vancouver 1.

METALS: Silver, lead, zinc (production shown on Table 1).

DESCRIPTION: Altered limestone and dolomite rocks are cut by manganiferous magnetite-galena veins, a pre-ore dyke, and transverse faults.

WORK DONE: Topography and underground workings mapped; underground geological mapping, 1 inch equals 20 feet covering Magno 4 and Crest 1; approximately 1 mile of road construction; underground work, 1,714 feet including slash on Magno 4 and Crest 1; underground diamond drilling, 25 holes totalling 2,773 feet on Magno 4 and Crest 1.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 36.

PI, JOAN (No. 64, Fig. A)

LOCATION: Lat. 59° 17'-18.8' Long. 129° 30'-31.7' (104P/5W, 6E)
LIARD M.D. At approximately 4,000 feet elevation immediately south of Hot Lake, on Hot and McDame Creeks, about 10 miles east of Cassiar.

CLAIMS: PI, JOAN, MAMBA, totalling 45.

ACCESS: By the Cassiar road from Watson Lake, 75 miles.

OWNER: GLEN COPPER MINES LIMITED, 1307, 1030 West Georgia Street, Vancouver 5.

METALS: Molybdenum, tungsten, zinc.

DESCRIPTION: Mineralization in skarn alteration of limestone.

WORK DONE: Trenching, 100 feet on Mamba and Joan; stripping, 900 square feet on PI.

JOEM, RAIN, DAKO (No. 46, Fig. A)

By A. D. Tidsbury

LOCATION: Lat. 59° 20' Long. 129° 28.5' (104P/6W)
LIARD M.D. At approximately 5,200 feet elevation, 1 mile southeast from summit of Mount Haskin.

CLAIMS: JOEM, RAIN, DAKO, etc., totalling 173.

ACCESS: Via the Cassiar-Stewart road from Mile 648.8 on the Alaska highway to Centreville, thence by 12 miles of access road to the property.

OWNER: DELLA MINES LTD., 1307, 1030 West Georgia Street, Vancouver 5.

METALS: Copper, silver, zinc, bismuth.

DESCRIPTION: A mineralized and structurally complex zone of skarn and limestone, intruded by pink syenite dykes, lies along the side of a granite stock. It is offset locally and sometimes significantly by transverse faults. Mineralization of the skarn zone consists of pyrrhotite, pyrite, sphalerite, chalcopyrite, minor galena, and molybdenum.

WORK DONE: Underground development of the 'B' zone was begun. Work consisted of surveying, access road and camp construction, 1,065 feet of tunnelling, and 2,035 feet of diamond drilling from the adit. The adit was contracted, trackless mining utilized, and a nominal size of 9 feet by 8 feet used.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 34.

IN (No. 59, Fig. A)

LOCATION: Lat. 57° 31′-39′ Long. 130° 51.5′-57′ (104G/10W)
LIARD M.D. At approximately 3,000 feet elevation between Mess and Schaft Creeks 2 to 10 miles northwest of Mess Lake, 28 miles south of Telegraph Creek.

CLAIMS: Two hundred and forty-six IN, 96 C, 12 D, 5 E.

ACCESS: By helicopter from Schaft Creek, 12 miles.

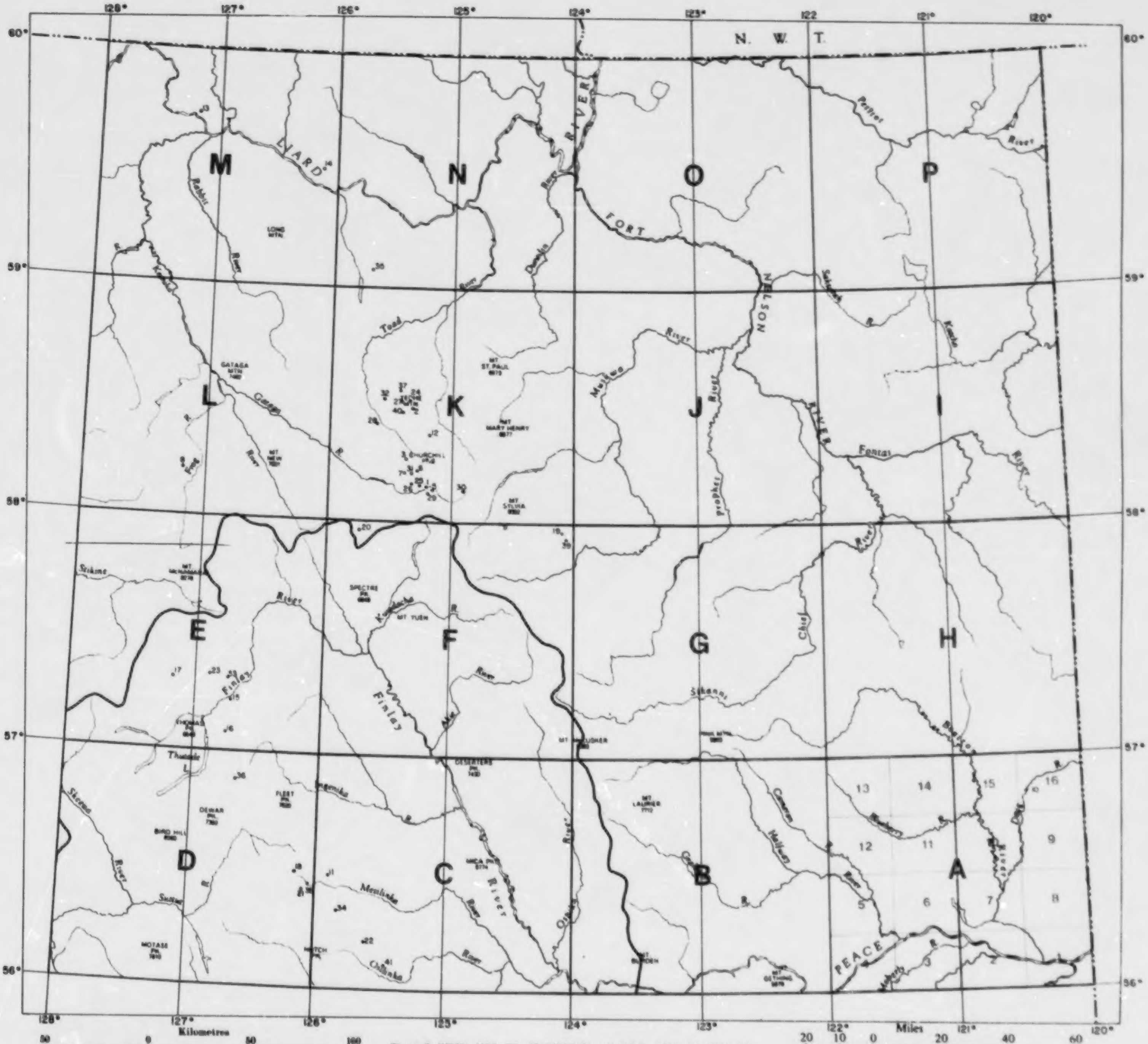
OWNER: Hecla Coperating Company.

OPERATOR: HECLA MINING COMPANY OF CANADA LTD., 2009, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Scattered copper suphides occur in andesites and monzonite in and adjacent to Hickman intrusions.

WORK DONE: Claims mapped; surface geological mapping, 1 inch equals 400 feet covering In 1-8, 11-13, 15, 17, 27-44, 54, 56, 58, 60, 62, 64, 66, 68, 70 and 1 inch equals 1,000 feet covering In 153-248, C 1-6, 23-28, 51-54, 82-88; geochemical soil survey, 586 samples from same claims; magnetometer survey, 33 line-miles covering In 1-8, 11-13, 15, 17, 27-44, 54, 56, 58, 60, 61, 64, 66, 68, 70.


128°
127°
126°
125°
124°
123°
122
121°
120°
60°
59°
58°
57°
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N. W. T.
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B
A
LIARD
RIVER
FORT
NELSON
RIVER
Rabbit
River
LONG MTN
Toad
River
Muskwa
River
Prophet
River
Fontas
River
Sikanni
Chief
GATAGA MTN
MT ST. PAUL
MT MARY HENRY
CHURCHILL
SPECTRE
MT YUEN
Kwadacha
R.
River
Finlay
Finlay
Stikine
THOMAS PK
Thutade L.
DESERTERS PK
Ingenika
R.
FLEET PK
DEWAR PK
BIRD HILL
Mesilinka
MICA DOME
River
Osilinka
NOTCH PK
MOTASE PK
MT BUSHER
MT GETHING
MT LAURIER
Sikanni
Beatton
Blueberry
Halfway
Cameron
PEACE
R.
13
14
15
16
12
11
9
5
6
7
8
3
2
Kilometres
50
0
50
100
Miles
20
10
0
20
40
60

Figure 8. INDEX MAP TO PROPERTIES IN NTS GRID DIVISION 94

KEY TO PROPERTIES ON INDEX MAP, FIGURE B.

1. ANDREW, page 102.
2. SHAW, page 89.
   MARG, page 89.
3. HD, page 95.
4. A, page 96.
5. P, page 102.
6. D, page 97.
7. BL, page 97.
8. LINDA, WEST, page 106.
9. FRAM, page 71.
10. RB, page 60.
11. RAVEN, page 61.
12. TORO, L, page 93.
13. WOLF, page 455.
14. TAM, page 462.
15. PINE, page 65.
16. KEMESS, page 64.
17. CHAPPELLE, page 65.
    LAWYERS, KODAH, SAUNDERS, page 70.
18. KLI, page 62.
19. BLUE, page 72.
20. STAG, page 71.
21. KLI, page 61.
22. KAM, page 60.
23. BLACK, page 71.
24. BY, page 89.
25. 428, page 99.
    BOOK, page 100.
    PJ, page 101.
26. BRONSON, page 97.
27. MAGNUM MINE, page 81.
28. MEINDL, page 91.
29. CHOPPER, page 103.
30. LYNDA, page 103.
31. GATAGA, page 96.
32. BOB, RIM, MAD, page 78.
33. JK, page 70.
34. GROUSE, page 60.
35. SNOW, page 462.
36. THOR, page 62.
37. EAGLE MINE, page 76.
38. SOUP, page 61.
39. JM, page 75.
40. LADY LUCK, LOLI, page 91.
41. BETTY, page 219.

NORTHEAST BRITISH COLUMBIA
(NTS Division 94 Figure B)

CHARLIE LAKE 94A

RB (No. 10, Fig. B)

LOCATION: Lat. 56° 49' Long. 120° 29' (94A/16W)
LIARD M.D. Forty-three air miles north-northeast of Fort St. John, about one-half mile east of the Doig River at an elevation of 2,350 feet.
CLAIMS: RB 1 to 5 (formerly HOD, BEAVER, CLEAR LAKE).
ACCESS: Via any of the numerous service and drill roads in the area.
OPERATOR: HIGHPLAIN EXPLORATION LTD., Box 96, Fort St. John.
DESCRIPTION: The area is underlain by marine and non-marine Upper Cretaceous sedimentary rocks.
WORK DONE: A geochemical survey was made in 1970.
REFERENCE: Assessment Report 2910.

FORT GRAHAME 94C

BETTY (No. 41, Fig. B)

LOCATION: Lat. 56° 04' Long. 125° 23' (94C/3W)
Report on this property in section 93N.

KAM (No. 22, Fig. B)

LOCATION: Lat. 56° 12.4' Long. 125° 37' (94C/4E)
OMINECA M.D. At elevations of 5,500 to 6,500 feet at the head of south fork of Matetlo Creek, 46 miles northwest of Germansen Landing.
CLAIMS: KAM 1 to 36.
ACCESS: By aircraft from Germansen Landing, 46 miles.
OWNER: FORTUNE ISLAND MINES LTD., 546 Howe Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The claims are underlain by hornblende granodiorite of the Omineca intrusions. Chalcopyrite, chrysocolla, and malachite occur in quartz-epidote veins in shear zones or disseminated in small areas within the granodiorite.
WORK DONE: Geological mapping on a scale of 1 inch equals 500 feet.
REFERENCES: *Geol. Surv., Canada,* Mem. 274, p. 224 (Matetlo Copper); Assessment Report 3342.

GROUSE (No. 34, Fig. B)

LOCATION: Lat. 56° 19.5' Long. 125° 49' (94C/5W)
OMINECA M.D. Three miles northwest of Tutizzi Lake, 2 miles south of Abraham Creek, 150 air miles northwest of Fort St. James.

CLAIMS: GROUSE 1 to 16.
ACCESS: By helicopter from Fort St. James, 150 miles.
OWNER: Union Miniere Explorations and Mining Corporation Limited.
OPERATOR: UMEGREN JOINT VENTURE, 1000, 1055 West Hastings Street, Vancouver 1.
METAL: Molybdenum.
WORK DONE: A geochemical soil survey was done in 1970.
REFERENCE: Assessment Report 3267.

RAVEN (No. 11, Fig. B)

LOCATION: Lat. 56° 29.5' Long. 125° 55' (94C/5W, 12W)
OMINECA M.D. Nine miles northwest of Aiken Lake, approximately 2.5 miles west of Lay Creek at elevations of 5,000 to 5,500 feet.
CLAIMS: RAVEN 1 to 10, 17 to 21.
ACCESS: By road from Fort St. James, 250 miles.
OWNER: UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, 1000, 1055 West Hastings Street, Vancouver 1.
DESCRIPTION: The claims are underlain by rusty weathering andesites of the Takla Group which are intruded by erratically distributed diorite dykes.
WORK DONE: Geological mapping and geochemical soil sampling.
REFERENCE: Assessment Report 3197.

McCONNELL CREEK 94D

SOUP (No. 38, Fig. B)

LOCATION: Lat. 56° 27' Long. 126° 03' (94D/8E)
OMINECA M.D. At approximately 7,000 feet elevation on Kliyul Creek, 12 miles northwest of Aiken Lake.
CLAIMS: SOUP 1 to 10.
ACCESS: By helicopter from Aiken Lake, 12 miles.
OPERATOR: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
METALS: Copper, gold, iron.
DESCRIPTION: Magnetite skarn occurs in Takla volcanic rocks with chalcopyrite and pyrite.
WORK DONE: Surface diamond drilling, four holes totalling 100 feet on Soup 10.
REFERENCE: Assessment Report 675.

KLI (No. 21, Fig. B)

LOCATION: Lat. 56° 26.5' Long. 126° 05' (94D/8E)
OMINECA M.D. Twelve miles west of Aiken Lake, along the west side of Kliyul Creek at elevations of 4,100 to 5,000 feet.
CLAIMS: KLI 1 to 4.
ACCESS: By helicopter from Aiken Lake, 12 miles.

OWNER: EL PASO MINING AND MILLING COMPANY, 500, 885 Dunsmuir Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The claims are underlain by porphyritic andesite of the Takla Group which is intruded by an ultramafic plug. Mineralization consists of chalcopyrite and pyrite irregularly disseminated through skarn bands near the ultramafic andesite contact.

WORK DONE: Geological mapping; geochemical and magnetometer surveys, 345 soil samples collected.

REFERENCE: Assessment Report 3264.

KLI (No. 18, Fig. B)

LOCATION: Lat. 56° 29.2'-30.5' Long. 126° 06.2'-09' (94D/8E, 9E)
OMINECA M.D. At approximately 5,700 feet elevation near headwaters of Kliyul Creek, 125 miles northeast of Smithers.

CLAIMS: KLI 1 to 50.

ACCESS: By helicopter from Fort St. James - Aiken Lake mining access road, 5 miles.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

METALS: Copper, gold.

DESCRIPTION: Disseminated sulphides and minor lenses of massive magnetite with minor chalcopyrite veins occur in Takla Group sedimentary and volcanic rocks.

WORK DONE: Geochemical silt and soil survey, 200 samples covering KLI 1-38; induced polarization survey, 8.1 line-miles covering half claim area; magnetometer survey, 8 line-miles.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 187; Assessment Reports 3312, 3313.

THOR (No. 36, Fig. B)

LOCATION: Lat. 56° 53' Long. 126° 38' (94D/15E)
OMINECA M.D. At approximately 6,000 feet elevation 2 miles northeast of the north end of Thorne Lake, at the headwaters of Attichika Creek.

CLAIMS: THOR 1 to 36.

ACCESS: By plane or helicopter from Smithers, 142 miles.

OWNER: KERR ADDISON MINES LIMITED, 405, 1112 West Pender Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: Minor chalcopyrite and molybdenite noted in quartz-filled fractures associated with Takla andesites.

WORK DONE: Surface geological mapping, 1 inch equals one-quarter mile, covering all claims; magnetometer survey, 31.6 line-miles covering all claims; self-potential survey, 7.3 line-miles covering Thor 1-14, 19-22; geochemical soil survey, 165 samples covering Thor 8-18, 21-24, 27-30.

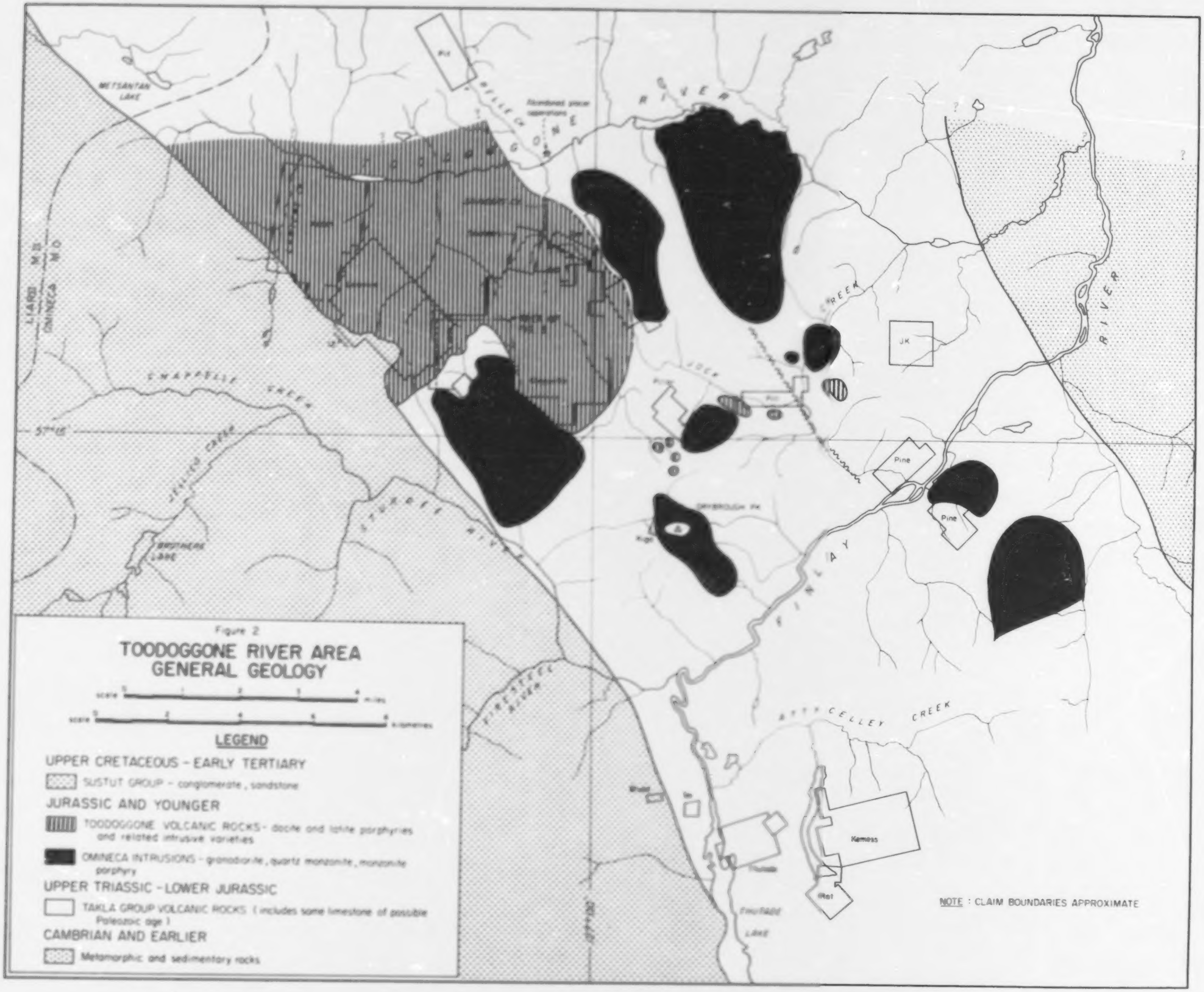


Figure 2

TOODOGGONE RIVER AREA
GENERAL GEOLOGY

scale 0 1 2 3 4 miles
scale 0 2 4 6 8 kilometres
LEGEND
UPPER CRETACEOUS - EARLY TERTIARY
SUSTUT GROUP - conglomerate, sandstone
JURASSIC AND YOUNGER
TOODOGGONE VOLCANIC ROCKS - dacite and latite porphyries and related intrusive varieties
OMINECA INTRUSIONS - granodiorite, quartz monzonite, monzonite porphyry
UPPER TRIASSIC - LOWER JURASSIC
TAKLA GROUP VOLCANIC ROCKS (includes some limestone of possible Paleozoic age)
CAMBRIAN AND EARLIER
Metamorphic and sedimentary rocks
METSANTAN LAKE
LIARD M.D.
OMINECA M.D.
CHAPPELLE CREEK
JEALICO CREEK
BROTHERS LAKE
STURDEE RIVER
FIRESTEEL RIVER
TOODOGGONE RIVER
BELLE CK
Abandoned placer operations
JOCK CREEK
JK
Pine
Pine
DRYBROUGH PK
FINLAY
RIVER
AMY CELLEY CREEK
Kemess
THUTADE LAKE
57°15'
127°00'
NOTE: CLAIM BOUNDARIES APPROXIMATE

TOODOGGONE RIVER AREA

By N. C. Carter

The Toodoggone River area is 170 miles north of Smithers. Access is by floatplane to one of a number of lakes in the region. The area discussed in this report is triangular in outline, being bounded on the north by the Toodoggone River and on the southeast and southwest by the Finlay and Sturdee Rivers respectively (Fig. 2).

Early mining exploration activity took place in the 1930's when placer claims near the junction of Belle Creek and the Toodoggone River were worked and several small blocks of claims were located to cover lead-zinc mineralization near the head of Thutade Lake. Since 1967, considerable exploration activity has taken place in the area, the principal companies involved being Kennco Explorations, (Western) Limited, Cordilleran Engineering Ltd., and Cominco Ltd. Many of the claim blocks located by these companies were in good standing as of December 31, 1971 and are shown on Figure 2.

The western third of the area shown on Figure 2 is within the Spatsizi Plateau, here an open, gently rolling upland surface dissected by wide valleys. The remainder of the area on Figure 2 is part of the Swannell Ranges of the Omineca Mountains and features a more rugged topography. Treeline extends to about 4,500 feet elevation, with tree cover being confined mainly to some of the major valleys.

Much of the area is underlain by volcanic rocks of the Takla Group of Upper Triassic age, which are intruded by granitic stocks of the Omineca intrusions and overlain by Jurassic and younger volcanic and sedimentary rocks. The oldest rocks of the area, of Cambrian and earlier age, include metamorphic and sedimentary rocks and are confined to the eastern edge of the map-area. The Takla Group rocks are mainly basaltic flows and pyroclastic rocks including augite porphyries and crystal and lapilli tuffs. Associated with these rocks are wedges of white crystalline limestone, up to several hundred feet thick, some of which may be of Paleozoic age. The Omineca intrusions, of Jurassic and Cretaceous age, include medium-grained, equigranular pink to grey quartz monzonites and granodiorites, which are cut by dykes and irregular bodies of salmon-pink monzonite porphyry and some fine-grained aplite. A sequence of volcanic rocks, Jurassic or younger in age, and here informally called the Toodoggone volcanic rocks, unconformably overlie Takla Group in the western part of the area. The Toodoggone rocks, which may be several hundred feet thick, include red to green or grey dacite and latite porphyry flows and pyroclastic rocks. Remnants of these volcanic rocks and small intrusions related to them are known to occur to the southeast. A hornblende separate, from a sample collected from the volcanic sequence 9 miles southeast of Drybrough Peak, yielded a K-Ar age of 186±6 million years. Upper Cretaceous pebble conglomerates and sandstones of the lower Tango Creek Formation of the Sustut Group (Eisbacher, 1971) overlie these volcanic rocks and rocks of the Takla Group near the west boundary of the area shown on Figure 2.

A feature of the Toodoggone area is prominent gossans that are visible for many miles because of the scarcity of vegetation. The gossans are associated with many of the known mineral deposits and are due to the presence of disseminated pyrite in the Takla Group. They are mainly a surface feature, with the depth of oxidation generally not exceeding several inches. In addition to gossans from weathered pyrite others, less prominent, result from the breakdown of mafic minerals in the volcanic rocks.

Several types of mineral deposits are known in the area. Recent exploration activity has been directed mainly to copper and molybdenum mineralization associated with monzonite porphyry dykes, a late phase of the granitic rocks of the Omineca intrusions. Examples of this type of mineralization are found on the Riga, Pine, and Pillar claim groups, where chalcopyrite and lesser molybdenite occur in fractures, as disseminations in the rock matrix, or in quartz veins.

A small skarn deposit occurs on the Castle Mountain Crown-granted claims 4 miles northwest of Black Lake. Several trenches in limestone adjacent to a granitic contact contain small amounts of magnetite, sphalerite, and galena.

The Toodoggone volcanic rocks are host to two types of mineralization. Abundant pyrite and minor chalcopyrite mineralization occurs in limonite-stained Takla volcanic rocks adjacent to several small plugs of feldspar porphyry 4 miles northeast of Black Lake. Near the headwaters of Saunders Creek, a feldspar porphyry breccia was noted containing one-quarter inch blebs of chalcopyrite.

On the Chappelle claim group, a quartz vein containing gold and silver occurs in Takla volcanic rocks. Quartz-feldspar porphyry dykes are intimately associated with the vein and may be related to the Toodoggone rocks which occur nearby. Soil samples, locally containing anomalous amounts of gold and silver, were collected from the Kodah and Lawyers claim groups which are mainly underlain by Toodoggone volcanic rocks.

References: Eisbacher, G. H., 1971, A Subdivision of the Upper Cretaceous-Lower Tertiary Sustut Group, Toodoggone Map-Area, British Columbia, *Geol. Surv., Canada*, Paper 70-68; Holland, Stuart S., 1964, Landforms of British Columbia, A Physiographic Outline, *B.C. Dept. of Mines & Pet. Res.*, Bull. 48; Assessment Reports 1802, 1823, 1825, 1846, 1861, 1886, 1888, 1906, 1940, 1959, 1983, 1984, 2035, 2082, 2083, 2582, 2819, 2822, 3265, 3266, 3343, 3361, 3362, 3366, 3367.

KEMESS (No. 16, Fig. B)

LOCATION: Lat. 57° 04′ Long. 126° 44′ (94E/2)
OMINECA M.D. Between 4,500 and 6,500 feet elevation 5 miles east of the north end of Thutade Lake.
CLAIMS: KEMESS, totalling 52.
ACCESS: By fixed-wing aircraft from Smithers, 175 miles.
OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Disseminated pyrite and chalcopyrite occur in Takla Group andesitic rocks which have been intruded by syenite and monzonite porphyries. Quartz-sericite-biotite alteration is present.
WORK DONE: Surface diamond drilling, two holes totalling 178 feet on Kemess 12 and 14.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 104.

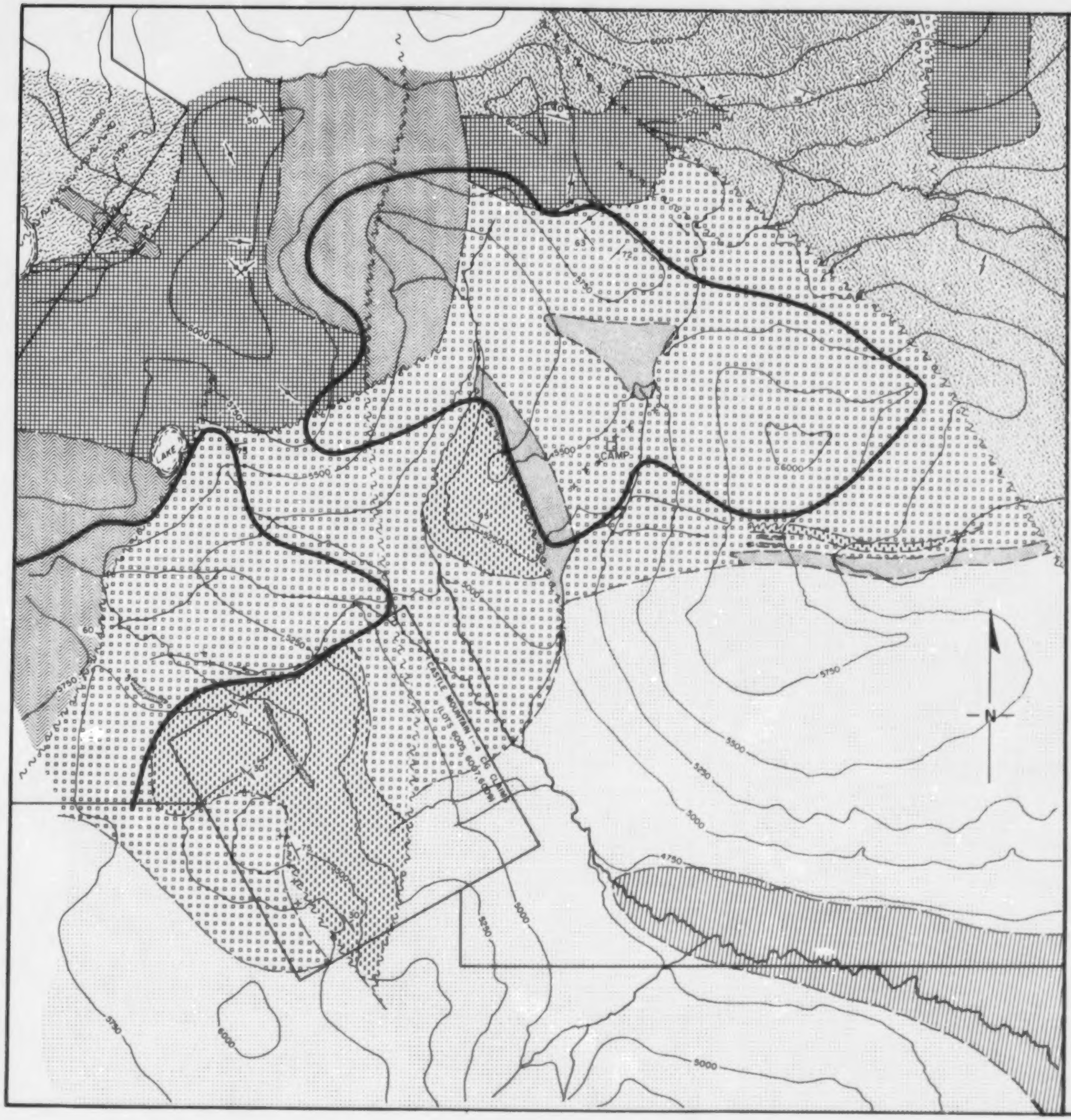


FIGURE 3

GEOLOGY OF PART OF THE CHAPPELLE CLAIMS
KENNCO EXPLORATIONS, (WESTERN) LTD.
TOODOGGONE RIVER AREA

LEGEND

QUATERNARY

Recent

▨ Alluvium

JURASSIC AND YOUNGER

Toodoggone volcanic rocks

▦ Grey-green hornblende feldspar porphyry and related pyroclastic rocks, dacite to latite composition.

▒ Quartz-feldspar porphyry and hornblende biotite feldspar porphyry flows and intrusive rocks, latite to dacite composition.

░ Red to lavender hornblende-feldspar crystal and lithic tuffs and porphyritic flow rocks, dacite to latite composition.

Omineca Intrusions

▒ Monzonite porphyry

☐ Quartz monzonite, granodiorite

UPPER TRIASSIC - LOWER JURASSIC

Takla Group

▦ Augite porphyry (basalt), minor andesite

▩ Limestone, minor chert

SYMBOLS

Stratification

Schistosity

Joints, fractures ... inclined, vertical

Fault

Thrust fault

+ + + Trenches

Limits of Gossan

Scale 1000 0 1000 2000 3000 Feet

Scale 500 0 500 1000 Metres

Base map provided by company

Geology by N.C. Carter

Note Claim boundaries approximate

PINE (No. 15, Fig. B)

LOCATION:	Lat. 57° 12'-15' Long. 126° 38'-44' (94E/2E) OMINECA M.D. On the southeast side of the Finlay River, 13 miles northeast of Thutade Lake.
CLAIMS:	PINE, totalling 54.
ACCESS:	By floatplane from Smithers to Pine Lake, 3 miles northeast of the claims.
OWNER:	KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
METAL:	Copper.
DESCRIPTION:	Disseminated pyrite and chalcopyrite occur in Takla volcanic rocks and porphyries of the Omineca intrusions.
WORK DONE:	Magnetometer and geochemical surveys were made in 1970. Line-cutting, a magnetometer survey covering 8 line-miles, and an induced polarization survey covering 7 line-miles were done in 1971.
REFERENCES:	*Minister of Mines, B.C.,* Ann. Rept., 1968, p. 149; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 103; Assessment Reports 3031, 3119, 3120, 3266.

CHAPPELLE (No. 17, Fig. B)

By N. C. Carter

LOCATION:	Lat. 57° 15'-17' Long. 127° 02'-10' (94E/6E) OMINECA M.D. Seventeen miles northwest of Thutade Lake, between elevations of 4,000 and 7,000 feet.
CLAIMS:	CHAPPELLE, totalling 262.
ACCESS:	From Smithers by air, a distance of 170 miles.
OWNER:	KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
METALS:	Gold, silver, copper.
DESCRIPTION:	

The Chappelle property was located in 1968 to investigate anomalous silt samples collected from the creek which drains the area shown on Figure 3. Soil samples, anomalous in gold and silver, were obtained from a large gossan zone in a cirque at the headwaters of the creek. Abundant quartz float was noted in felsenmeer on a southerly trending spur, and trenching exposed a northeast striking gold and silver bearing quartz vein.

The claim group is within the Spatsizi Plateau and the topography is relatively gentle, with steep slopes occurring only at the heads of cirques. The area is above treeline, with scrub brush found in the valley shown in the southeast part of Figure 3.

The central part of the area is underlain by Takla Group limonite-stained augite porphyries mainly of basalt composition (Fig. 4). Typically, the rock is dark green on fresh surface and has a 25 per cent content of 3 to 5-millimetre euhedral augite phenocrysts.

White crystalline limestone, with some interbedded chert, is generally in fault contact with the Takla volcanic rocks. On the Castle Mountain Crown-granted claims, the limestone is apparently thrust in a southerly direction over the volcanic rocks. Planes of schistosity measured in the limestone represent the limbs of a recumbent isoclinal fold,

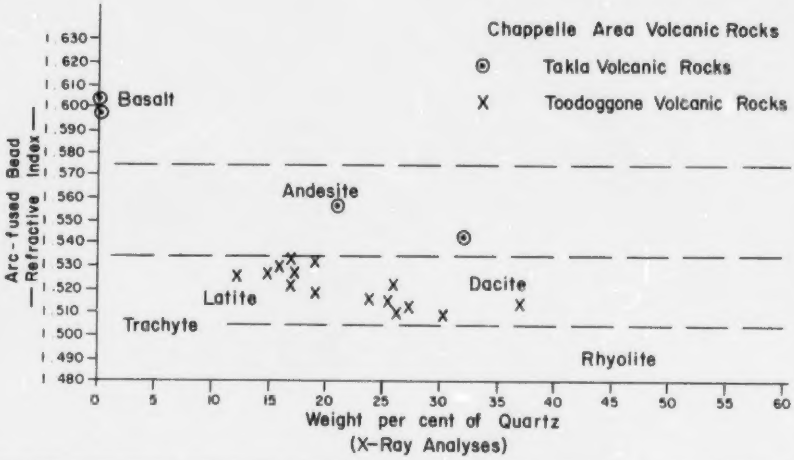


Figure 4. Comparison of refractive index-quartz variation of Takla and Toodoggone volcanic rocks.

which has been warped into a broad open fold, with a northwest striking axis, during a second period of folding probably related to thrust faulting. An area of limestone near the camp is in fault contact with a monzonite porphyry dyke, and a band of limestone on the ridge east of the camp is apparently interbedded with the volcanic rocks, indicating that the limestone is part of the Takla sequence. Some poorly preserved rugose corals were noted in the limestone on the Castle Mountain claims.

The limestones and volcanic rocks are intruded by quartz monzonites, granodiorites, and monzonite porphyries of the Omineca intrusions. The quartz monzonites and the granodiorites occur in an elliptical stock which extends from near the Chappelle camp, as shown on Figure 3, southeasterly for 5 miles. These rocks are pink to grey, medium-grained, equigranular rocks in which plagioclase (oligoclase-andesine) and K-feldspar are nearly equally distributed. Unaltered green hornblende is the chief mafic mineral, and some biotite, partly chloritized, is usually present. Accessory minerals include epidote, apatite, sphene, and metallic minerals.

Monzonite porphyries occur as dyke-like bodies of variable size. The porphyries weather to a distinctive salmon-pink colour and contain 25 per cent of 2 to 4-millimetre euhedral phenocrysts of plagioclase and green hornblende. The fine-grained matrix consists of K-feldspar, plagioclase, minor quartz, and magnetite.

Overlying the Takla Group is a sequence of volcanic rocks, believed to be of Jurassic or younger age, here informally called the Toodoggone volcanic rocks. The sequence consists essentially of hornblende-feldspar porphyry flows and related pyroclastic rocks. Crudely developed columnar jointing noted just west of the map-area indicates that the sequence is generally flat lying. Twenty to 30 per cent of the rock is made up of 2 to 3-millimetre phenocrysts of subhedral, unzoned plagioclase (andesine) and hornblende (altered to a mixture of iron oxides, chlorite, and carbonate), which are set in a fine-grained matrix of plagioclase and K-feldspar. Quartz, generally present in only minor amounts, occurs locally as rounded phenocrysts. Lapilli-sized fragments were noted in a few areas. Figure 4, a comparison of the refractive index of fused beads and the weight per cent of quartz of a number of these rocks, indicates that they range in composition from dacite to latite.

Although similar in composition, the Toodoggone volcanic rocks within the map-area have been subdivided into three units on the basis of colour and texture (Fig. 3). These include a lower, red to lavender, mainly pyroclastic unit; a middle quartz-feldspar porphyry unit, believed to be intrusive in part; and an upper grey to green hornblende-feldspar porphyry unit. A definite intrusive body, related to the middle unit, forms a step-faulted, northwest striking dyke that cuts rocks of the lower unit near the northwest part of the map-area.

The area is transected by numerous north, northeast, and northwest striking faults that have a topographic expression and define many of the boundaries between the different lithologic units. Two thrust faults were noted; one between the limestones and the volcanic rocks previously described in the southern part of the map-area, and the other near the north boundary, where Takla volcanic rocks are thrust over younger Toodoggone rocks. Fractures are well developed in the Takla volcanic rocks, particularly near the camp.

Limonite staining is widespread in the central part of the area, as outlined on Figure 3, due to the presence of abundant disseminated pyrite in the volcanic rocks and monzonite porphyries. The limestones contain little pyrite and thus are generally free of iron staining.

The principal area of interest is near the camp where a number of trenches expose a northeast striking, vertical to steeply dipping quartz vein. The vein, variable in width from 5 to 15 feet, had been traced for approximately 800 feet by mid-summer. Limited trenching was done on a vein several thousand feet southwest of the camp and in an area to the northwest near the head of the cirque.

As shown on Figure 5, the principal vein is fault bounded along much of its length. Northwest and north striking faults have segmented and offset the vein at several places. Within the vein, hairline carbonate fractures are common, and the main metallic minerals, in approximate decreasing abundance, include fine-grained pyrite, chalcopyrite, bornite, and submicroscopic-size native gold and argentite. Chip samples were taken at several places across the exposed vein width and the results and sample locations are shown on Figure 5.

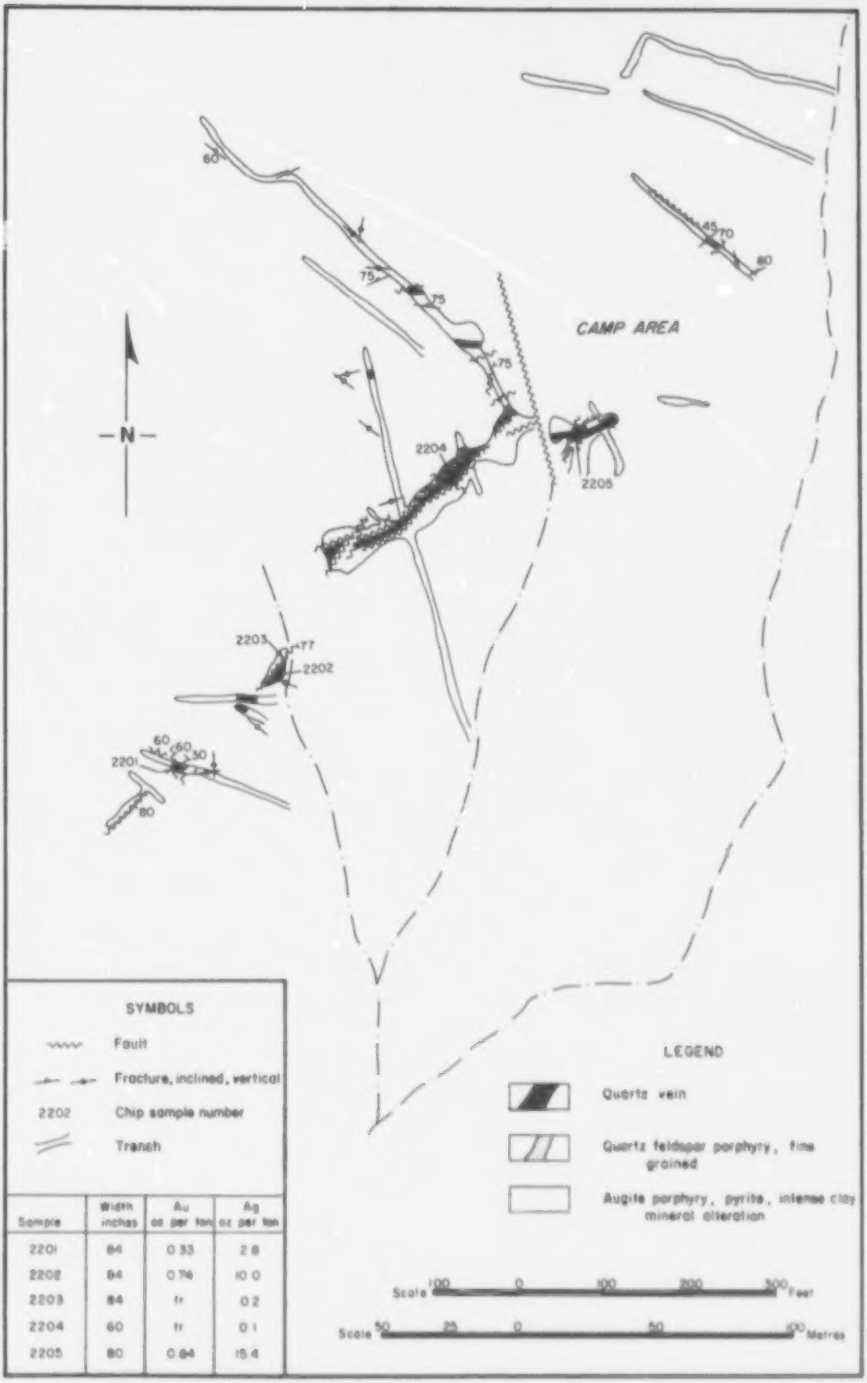
Takla volcanic rocks adjacent to the vein exhibit varying degrees of hydrothermal alteration which in most intensely developed marginal to faults. The altered zone is up to several hundred feet wide and includes all gradations of alteration, ranging from a light grey variety of augite porphyry, in which the original augite phenocrysts are still visible although altered to a mixture of fibrous clay minerals, to a bleached white variety, in which angular fragments of silicified rock are cemented by veinlets of quartz and minor carbonate. Pyrite is widely distributed in the zone of alteration.

Buff quartz-feldspar porphyry dykes, of pre-mineral age and ranging from 5 to 15 feet wide, are found paralleling the vein in the central trenches. One to 2-millimetre phenocrysts of altered plagioclase and crowded quartz make up 20 per cent of the rock and are set in a very fine-grained matrix of quartz and clay minerals.

The presence of these dykes suggests several possible genetic relationships for the quartz vein. The dykes and vein are bracketed by two intrusive bodies of monzonite porphyry,

Plate IA.   Hydraulicking trenches at the Chappelle property.

Plate IB.   Camp and trenches on the Chappelle property.


CAMP AREA
N
60
75
75
75
45
70
80
2204
2205
2203
77
2202
60
60
30
2201
80
SYMBOLS
Fault
Fracture, inclined, vertical
2202 Chip sample number
Trench
LEGEND
Quartz vein
Quartz feldspar porphyry, fine grained
Augite porphyry, pyrite, intense clay mineral alteration
Scale 100 0 100 200 300 Feet
Scale 50 25 0 50 100 Metres

Sample	Width inches	Au oz per ton	Ag oz per ton
2201	84	0.33	2.8
2202	84	0.76	10.0
2203	84	tr	0.2
2204	60	tr	0.1
2205	80	0.84	15.4

Figure 5. Plan of trenches in the Chappelle camp area.

one of which also contains quartz eyes. If the dykes are related to the monzonite porphyries, the mineralization is of Omineca intrusion age. However, the quartz-feldspar porphyry dykes also resemble the middle unit of the Toodoggone volcanic rocks suggesting that the dykes are feeders and the vein is related to this period of volcanism. No absolute ages have been determined for the monzonite porphyries, and it is possible that these intrusions are also related to the Toodoggone volcanic rocks.

WORK DONE: Regional geological mapping and soil, silt, and rock geochemistry plus detailed geological mapping in the main showings area. Two thousand feet of hydraulic trenching was done, using a fire hose and monitor with a nozzle pressure of 300 pounds per square inch. Water was pumped to the crest of the spur some 300 feet vertically above the trenches and stored in two portable swimming pools. A straight gravity feed from the pools was used. Three short drill holes totalling 300 feet were completed.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 188; Assessment Reports 2582, 2819, 3171, 3198, 3343, 3367, 3417, 3418, 3419.

LAWYERS, KODAH, SAUNDERS (No. 17, Fig. B)

LOCATION: Lat. 57° 17'-21' Long. 127° 03'-17' (94E/6)
OMINECA M.D. Seventeen miles northwest of Thutade Lake, between elevations of 4,000 and 7,000 feet.

CLAIMS: LAWYERS, KODAH, SAUNDERS, totalling 549.

ACCESS: From Smithers by air, a distance of 170 miles.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

METALS: Gold, silver, copper.

WORK DONE: Regional geological mapping and soil, silt, and rock geochemistry.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 187; Assessment Reports 2822, 3314, 3315, 3316, 3361, 3362, 3366, 3416.

JK (No. 33, Fig. B)

LOCATION: Lat. 57° 16.7'-18' Long. 126° 42.8'-45' (94E/7E)
OMINECA M.D. In the Toodoggone River area, 5 miles west of the Finlay River and 2 miles south of the Toodoggone River.

CLAIMS: JK 1 to 36.

ACCESS: By aircraft from Smithers, approximately 170 miles.

OWNER: CORDILLERAN ENGINEERING LTD., 1418, 355 Burrard Street, Vancouver 1.

DESCRIPTION: The claims are underlain by Triassic porphyritic andesite.

WORK DONE: An induced polarization and resistivity survey was done on JK 17-20, 22, 29, 31, and 33.

REFERENCE: Assessment Report 3265.

BLACK (No. 23, Fig. B)

LOCATION: Lat. 57° 17.5'-19' Long. 126° 51.4'-53.8' (94E/7W)
OMINECA M.D. Seventeen miles north of Thutade Lake, 3 miles south of Mount Graves at elevations of 5,000 to 6,200 feet.
CLAIMS: BLACK 1 to 36.
ACCESS: By aircraft from Smithers, 180 miles.
OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
WORK DONE: Silt geochemical and preliminary soil geochemical surveys.
REFERENCE: Assessment Report 3368.

WARE 94F

STAG (No. 20, Fig. B)

LOCATION: Lat. 57° 58' Long. 125° 44' (94F/13)
LIARD M.D. At approximately 5,000 feet elevation at the headwaters of the south Gataga River, 2 miles north of the Liard-Omineca Mining Division boundary.
CLAIMS: STAG 1 to 20, GAT 1 to 8.
OPERATOR: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
METALS: Zinc, lead, cobalt, molybdenum, silver.
WORK DONE: Geochemical silt, soil, and rock survey, 5 line-miles covering Stag 1-10 mainly.
REFERENCE: Assessment Report 3199.

FRAM (No. 9, Fig. B)

LOCATION: Lat. 58° 00' Long. 124° 36' (94F/15E)
LIARD M.D. Eleven miles south of the west end of Tuchodi Lake, near the headwaters of Gathto Creek at elevations of 6,000 to 8,000 feet.
CLAIMS: FRAM 1 to 18.
ACCESS: By helicopter, 45 miles south from Mile 392 on the Alaska highway.
OWNER: WINDERMERE EXPLORATION LTD., 1418, 355 Burrard Street, Vancouver 1.
METALS: Copper, silver, lead.
DESCRIPTION: Bornite and lesser amounts of chalcopyrite with minor silver and lead mineralization occur in quartz-carbonate veins along faults, fractures, and shear zones in interbanded argillites and argillaceous dolomites.
WORK DONE: Geological mapping, prospecting, and sampling were done in 1970.
REFERENCE: Assessment Report 2875.

JM (No. 39, Fig. B)

LOCATION: Lat. 57° 52.7'-56.8' Long. 123° 59' - 124° 09' (94F/16E)
Report on this property in section 94G/13W.

BLUE (No. 19, Fig. B)

LOCATION:	Lat. 57° 55′ - 58° 00′ Long. 124° 05′-10′ (94F/16E) LIARD M.D. On Grayling Creek, 80 miles southwest of Fort Nelson.
CLAIMS:	BLUE 1 to 12, BLUE COPPER 1 to 46, RED 1 to 24, READY 1 to 24, LORE 1 to 20, SEAN 1 to 25, JAY 1 to 16, TONEY 1 to 16, PAT 1 to 20, FT 1 to 145, PETE 1 to 8.
ACCESS:	By helicopter from Fort Nelson, 80 miles.
OPERATOR:	McINTYRE PORCUPINE MINES LIMITED, 312, 409 Granville Street, Vancouver 2.
METAL:	Copper.
DESCRIPTION:	

The rocks in the vicinity of the showings range in age from Precambrian to Devonian (G. C Taylor, *Geol. Surv., Canada,* written communication, November 1971) and are part of one of the many thrust plates that form the Muskwa Ranges of the Northern Rocky Mountains.

The main showings (Fig. 6) are in the lower parts of a dolomite unit several hundred feet thick that is probably one of the basal units of the platform carbonate facies of the Lower Ordovician Kechika Group (G. C. Taylor, *op cit*). The dolomite is grey to buff weathering, thick bedded, and typically contains numerous thin interbeds and lenses of light grey, crossbedded quartzite. Near copper mineralization the dolomite is commonly completely recrystallized and contains irregular bodies of quartzite breccia that could have been caused by solution of the carbonate, collapse of the quartzite interbeds, and subsequent cementation by recrystallized dolomite and some sulphides. The dolomite unit is underlain without apparent angular discordance by some 200 feet of distinctive white, well-sorted, crossbedded, and ripple-marked quartzite which in turn is underlain by another dolomite unit of unknown thickness. These two latter units are probably part of the Cambrian Atan Group.

The three main copper showings occur along the creek on the limbs of an open but clearly outlined anticline, the axis of which trends approximately north 15 degrees west and plunges gently northward (Fig. 6). In the same area the axis of this fold is paralleled by a fault which dips gently to the east.

The most spectacular of the showings, No. 3, is crudely conformable to the bedding of unit 3. It consists of an exposed thickness of at least 15 feet of recrystallized dolomite with some interbedded lenses of crossbedded quartzite. Mineralization consists of bornite, chalcopyrite, and pyrite occurring as semi-massive replacement lenses as much as 3 feet long and 18 inches thick, intersecting veinlets, thin lenses, and coarse disseminations, as well as encrustations on drusy cavities lined with dolomite crystals. The mineralized zone has been intersected by three short diamond-drill holes (Nos. 1B, 2B, and 3B, Fig. 7). Holes 2B and 3B indicated a thickness of some 30 feet of mineralized material grading between 2.5 and 3 per cent copper. Hole 1B, though collared on the showing, intersected only approximately 15 feet of rock averaging somewhat less than 1 per cent in copper content. A number of other drill holes virtually surrounding the showing failed to intersect any significant mineralization (Fig. 7) indicating that the mineralization exposed along the creek near drill hole 1B is of limited extent.

A limited amount of drilling in six short holes done near showing No. 2, where somewhat less impressive mineralization is found, similarly failed to outline any appreciable size for that showing. No drilling was done on showing No. 1, but a limited amount of trenching

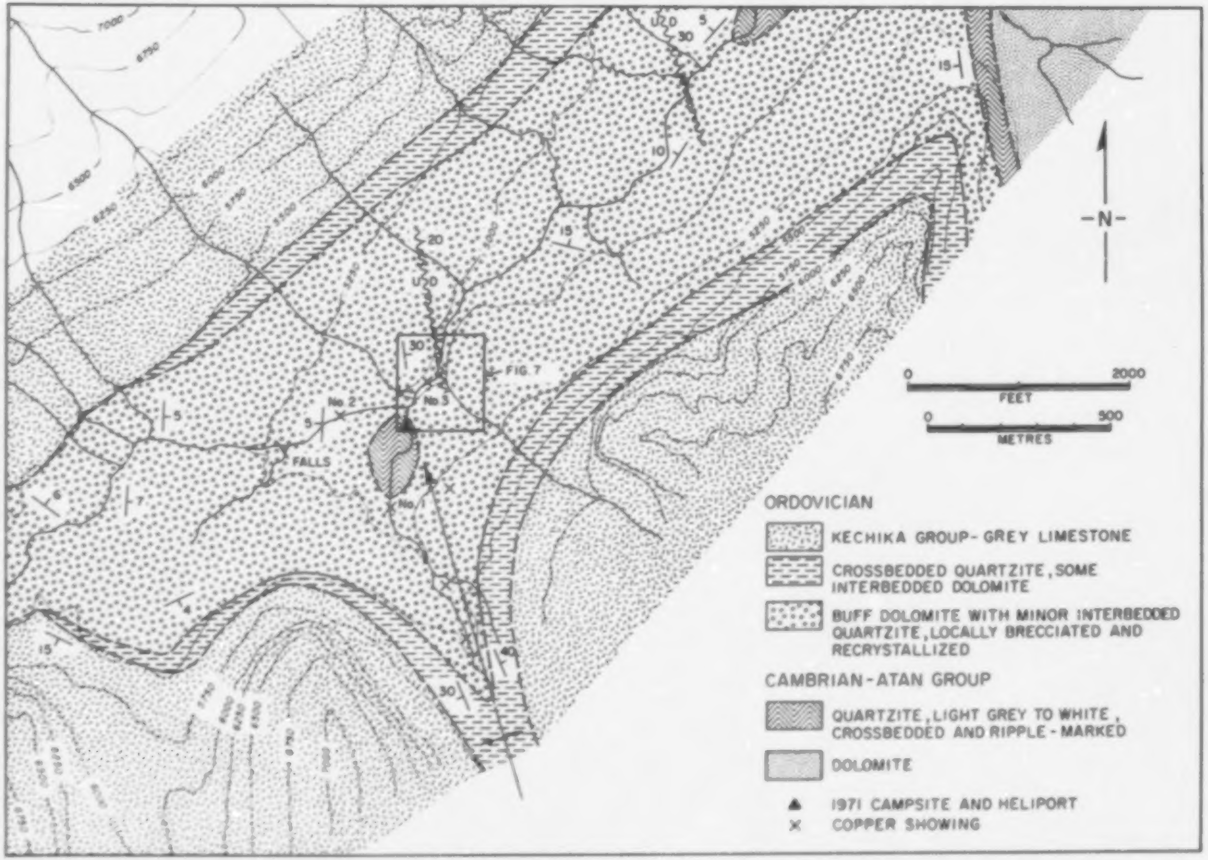

-N-
0
2000
FEET
0
300
METRES
ORDOVICIAN
KECHIKA GROUP- GREY LIMESTONE
CROSSBEDDED QUARTZITE, SOME INTERBEDDED DOLOMITE
BUFF DOLOMITE WITH MINOR INTERBEDDED QUARTZITE, LOCALLY BRECCIATED AND RECRYSTALLIZED
CAMBRIAN-ATAN GROUP
QUARTZITE, LIGHT GREY TO WHITE, CROSSBEDDED AND RIPPLE-MARKED
DOLOMITE
▲ 1971 CAMPSITE AND HELIPORT
× COPPER SHOWING
FIG. 7
No. 1
No. 2
No. 3
FALLS
U D
7000
6750
6500
6250
6000
5750
5500
5250
15
10
20
30
5
6
7
4
40

Figure 6. Geology of Blue claim group, McIntyre Porcupine Mines Limited (from company plans).

done some 500 feet east of this showing, at a locality where veinlets of bornite as much as one-half inch thick are found in buff dolomite, also failed to indicate any appreciable size for this occurrence. A number of diamond-drill holes, some of which are shown on Figure 7, were put down in the area surrounding the trenching and in most cases penetrated to the bottom of unit 3 and into the distinctive quartzite of unit 2, but failed to intersect any noticeable mineralization.

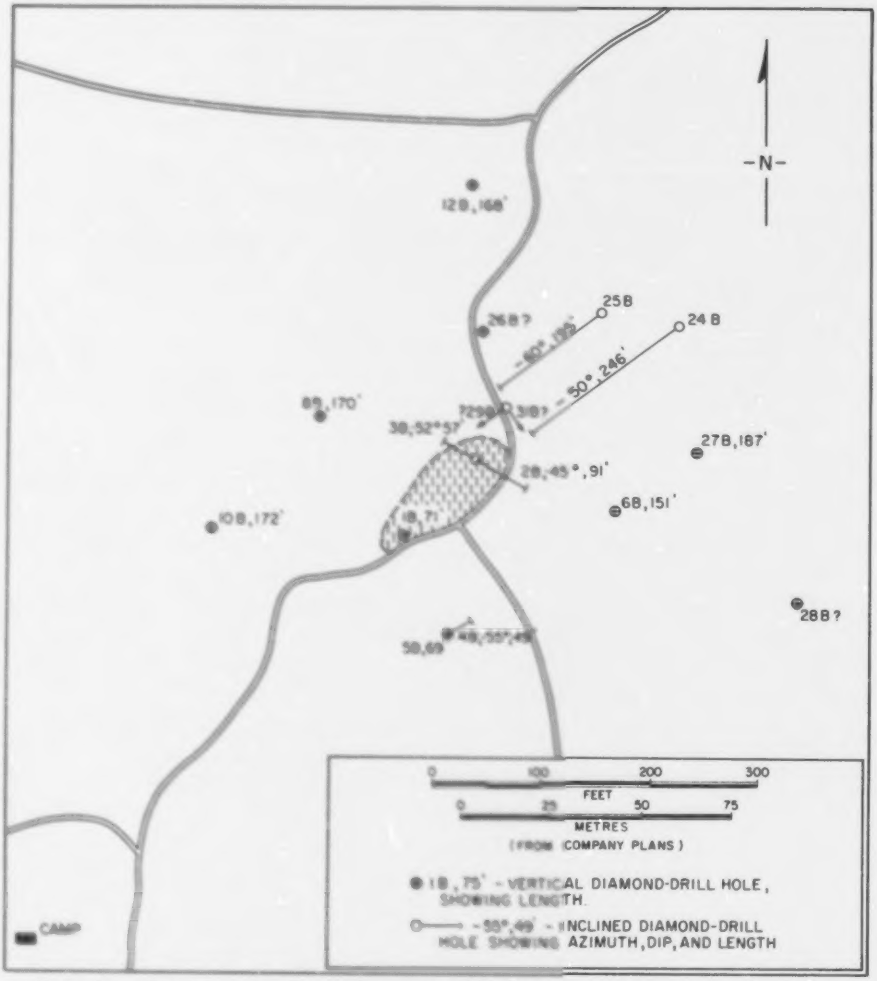
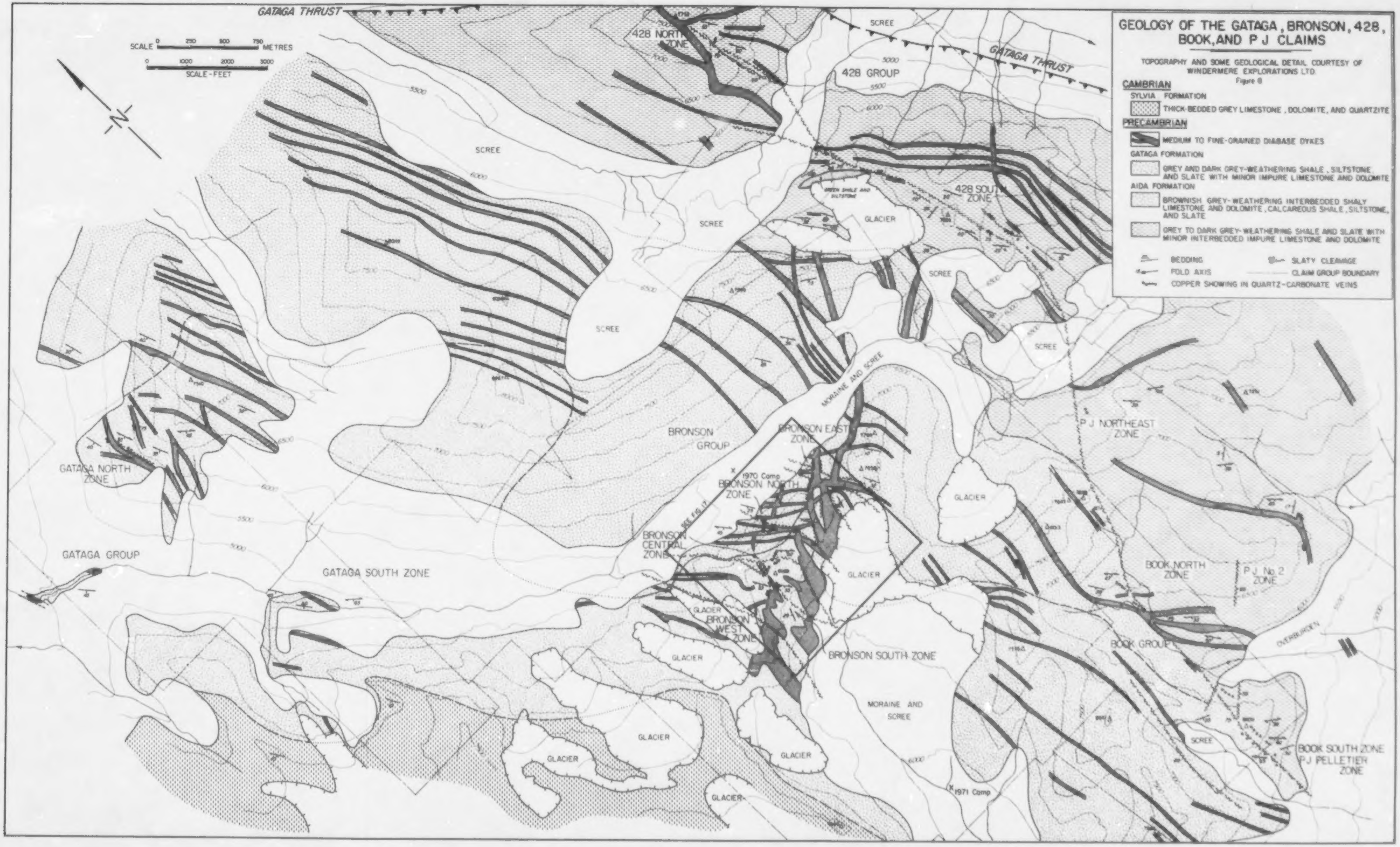

-N-
12B,168'
26B?
25B
24B
-60°,192'
-50°,246'
8B,170'
?29B
31B?
3B,52°57'
2B,45°,91'
27B,187'
6B,151'
10B,172'
1B,71'
28B?
5B,69'
4B,55°,49'
CAMP
0
100
200
300
FEET
0
25
50
75
METRES
(FROM COMPANY PLANS)
1B,75' - VERTICAL DIAMOND-DRILL HOLE, SHOWING LENGTH.
-55°,49' - INCLINED DIAMOND-DRILL HOLE SHOWING AZIMUTH, DIP, AND LENGTH

Figure 7. Drill-hole plan, Blue claim group, No. 3 showing, McIntyre Porcupine Mines Limited.

No simple explanation can be readily offered for these copper occurrences, especially in view of the apparent total absence of intrusive rocks in the vicinity of the showings. Some structural control is evident from the distribution of the copper occurrences relative to the northerly trending anticline and associated fault (Fig. 6). Possibly solution and subsequent recrystallization of the dolomite is another feature which is closely associated


GATAGA THRUST
SCALE 0 250 500 750 METRES
0 1000 2000 3000
SCALE-FEET
N
428 NORTH ZONE
SCREE
428 GROUP
5000
5500
6000
6500
7000
428 SOUTH ZONE
GREEN SHALE AND SILTSTONE
GLACIER
MORAINE AND SCREE
BRONSON GROUP
BRONSON EAST ZONE
1970 Camp
BRONSON NORTH ZONE
BRONSON CENTRAL ZONE
BRONSON WEST ZONE
BRONSON SOUTH ZONE
GATAGA NORTH ZONE
GATAGA GROUP
GATAGA SOUTH ZONE
P J NORTHEAST ZONE
BOOK NORTH ZONE
P J No. 2 ZONE
BOOK GROUP
OVERBURDEN
BOOK SOUTH ZONE
P J PELLETIER ZONE
1971 Camp
CAMBRIAN
SYLVIA FORMATION
THICK-BEDDED GREY LIMESTONE, DOLOMITE, AND QUARTZITE
PRECAMBRIAN
MEDIUM TO FINE-GRAINED DIABASE DYKES
GATAGA FORMATION
GREY AND DARK GREY-WEATHERING SHALE, SILTSTONE AND SLATE WITH MINOR IMPURE LIMESTONE AND DOLOMITE
AIDA FORMATION
BROWNISH GREY-WEATHERING INTERBEDDED SHALY LIMESTONE AND DOLOMITE, CALCAREOUS SHALE, SILTSTONE, AND SLATE
GREY TO DARK GREY-WEATHERING SHALE AND SLATE WITH MINOR INTERBEDDED IMPURE LIMESTONE AND DOLOMITE
BEDDING
SLATY CLEAVAGE
FOLD AXIS
CLAIM GROUP BOUNDARY
COPPER SHOWING IN QUARTZ-CARBONATE VEINS

GEOLOGY OF THE GATAGA, BRONSON, 428, BOOK, AND P J CLAIMS

TOPOGRAPHY AND SOME GEOLOGICAL DETAIL COURTESY OF WINDERMERE EXPLORATIONS LTD

Figure 8

with the showings. This type of mineralization may have been localized by structurally controlled fracturing in dolomite of unit 3 that produced zones along which solutions passed partly dissolving the dolomite, perhaps causing zones of collapse breccia with subsequent recrystallization of the dolomite and local replacement by sulphides.

WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet; geochemical soil survey, 10 line-miles; induced polarization survey, trenching, 366 feet; surface diamond drilling, 36 holes totalling 5,400 feet.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 62.

TRUTCH 94G

JM (No. 39, Fig. B)

LOCATION: Lat. 57° 52.7′-56.8′ Long. 123° 59′ - 124° 09′ (94F/16E, 94G/13W)

LIARD M.D. At approximately 7,250 feet elevation 5 miles southwest of Kluachesi Lake, 6 miles north of the Muskwa River.

CLAIMS: JM, totalling 104.

ACCESS: By air from Fort Nelson, 74 miles.

OPERATOR: SLOCAN OTTAWA MINES LTD. (now Slocan Development Corporation Limited), 2002, 1177 West Hastings Street, Vancouver 1.

WORK DONE: Underground geological mapping, 1 inch equals 40 feet; drifting and crosscutting, 600 feet.

TUCHODI LAKES 94K

LODE COPPER DEPOSITS OF THE RACING RIVER - GATAGA RIVER AREA

By V. A. Preto

Copper-bearing quartz-carbonate veins are widespread in the Racing River-Gataga River region of the Northern Rocky Mountains. The veins occur in an area at least 50 miles long and 30 miles wide and are found almost exclusively in phyllite, slate, shale, and impure carbonate rocks of the Aida and Gataga Formations, which have been mapped as the two uppermost formations of the Helikian succession (Taylor and Stott, 1971). Emplacement of the veins was controlled in many cases by folds in the sedimentary rocks and/or by ancient through-going fault zones. Numerous diabase dykes, generally post-mineral in age, cut or run parallel to most veins and are unconformably overlain by Cambrian and younger strata. Also the Cambrian basal conglomerates are known to contain pebbles and boulders of mineralized vein material, thus indicating that the mineralization is of Precambrian age. The fold structures which are believed to have controlled the emplacement of many veins are also thought to be of Precambrian age inasmuch as many veins and dykes cut the folds but are themselves not deformed. Of the known deposits, several of which have been extensively explored, only the Magnum has produced ore. Another deposit which has been extensively explored is the Eagle vein, 4 miles northwest of the Magnum mine. The Magnum, the Eagle, and several other veins in the area occupy fault zones that trend north 35 to 40 degrees east and have vertical or very steep northwest dips. These tensional structures are oriented approximately at right angles to the axes of southeasterly plunging concentric folds that are overturned to the northeast. The folds are not uniformly distributed in the region but occur in clusters in which the veins seem to be mainly concentrated. Other veins, such as those on the Book, 428, and PJ groups of claims in the Gataga River area (Fig. 8) do not appear to be controlled by folds, but follow major northerly trending fault zones.

Another type of copper mineralization that is found in the area and that is of interest consists of disseminations of chalcopyrite in quartzite of the Tuchodi Formation. This unit, which is described as being a 5,000-foot succession of feldspathic quartzites and silty and argillaceous dolomites (Taylor and Stott, 1971, p. 9), directly underlies the Aida and Gataga Formations. An occurrence of disseminated chalcopyrite in a 30-foot bed of clean, well-sorted, nearly white quartzite of the lower members of the Tuchodi Formation is reported from the headwaters of the Chischa River, 6 miles north of Tuchodi Lakes.

References: Taylor, G. C. and Stott, D. F., 1971, Tuchodi Lakes, British Columbia (94K), *Geol. Surv., Canada*, open-file report.

EAGLE MINE (No. 37, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 33.1′ Long. 125° 26.5′ (94K/11W)
LIARD M.D. Between 5,000 and 7,300 feet elevation at the head of Cariboo Creek, the south branch of Yedhe Creek.
CLAIMS: EAGLE, BONANZA, LOIS, etc., totalling 429.
ACCESS: By road from Mile 442 on the Alaska highway, 20.5 miles.
OWNER: DAVIS-KEAYS MINING CO. LTD., 504, 850 West Hastings Street, Vancouver 1; mine address, Box 300, Fort Nelson.
METAL: Copper.
DESCRIPTION:

The entire sedimentary succession within the area of Figure 9 consists of Precambrian strata of the Aida Formation. This sequence is of considerable, though at present unknown, thickness, and has been divided crudely into three units, which from bottom to top comprise grey-weathering limestone and interbedded calcareous shale, buff to orange-weathering dolomite and interbedded dolomitic shale, and dark grey-weathering calcareous shale with minor interbedded impure limestone. The bottom of the lower unit and the top of the upper unit were not observed by this writer within the boundaries of the area mapped. A large number of diabase dykes, ranging from a few to more than 300 feet wide, cut the sedimentary rocks. All dykes dip steeply or vertically and, for the most part, trend northeasterly. As elsewhere in the region, the dykes can be easily mapped because of their distinctive dark brownish to olive-green colour in outcrop, and are characterized by a minimal amount of contact metamorphism of the surrounding sedimentary rocks.

Throughout the map-area the Precambrian strata are folded about axes that plunge gently southeastward. All folds are asymmetric, with steep northeast and gentle southwest limbs, and have axial planes that are contained by a ubiquitous slaty cleavage that trends southeast and dips steeply southwest. Though widespread throughout the map-area, most folds are concentrated in a northeasterly trending belt roughly 8,000 feet wide that

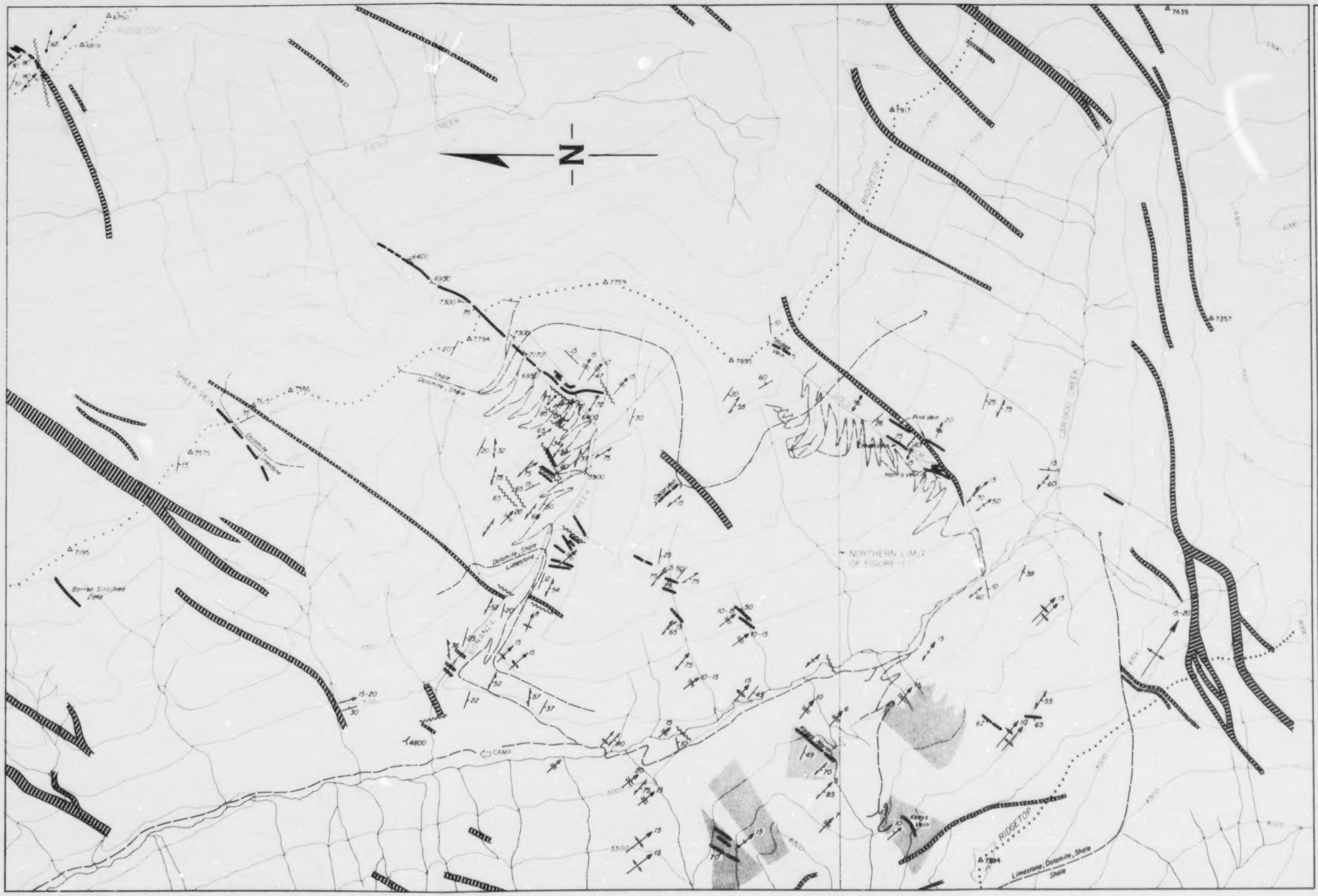

N
Δ6750
RIDGETOP
Δ6819
TABLE CREEK
6400
6950
7300
Δ7794
Δ7759
Shale
Dolomite, Shale
Δ7555
SHEEP VEIN
Dolomite
Δ7575
Δ7195
Barren Silicified Zone
Dolomite, Shale
Limestone
Δ7895
Ridge Vein
Pink Vein
Eagle Vein
Harris Vein
NORTHERN LIMIT OF FIGURE 11
Δ7917
RIDGETOP
CARIBOO CREEK
Δ7439
Δ7257
4800
CAMP
5000
5500
Keays Vein
Δ7634
RIDGETOP
Limestone, Dolomite, Shale
Shale

Figure 9

DAVIS-KEAYS MINING CO. LTD.

GENERALIZED GEOLOGY AND LOCATION MAP IN THE VICINITY OF THE EAGLE AND HARRIS VEINS

GEOLOGY BY V.A.PRETO

SCALE 0 800 1600 2400 FEET

SCALE 0 200 400 600 METRES

LEGEND

▨	AREA OF DOLOMITIZED LIMESTONE AND SHALE
/ 75/	VEIN ; VERTICAL , DIPPING
▨	DIABASE DYKE
15	BEDDING
55	SLATY CLEAVAGE
15	PLUNGE OF FOLD AXIS
15	AXIAL TRACE AND PLUNGE OF ANTICLINE , SYNCLINE
15	PLUNGE OF MULTIPLE FOLDS
~~	FAULT
7170	ADIT PORTAL AND LEVEL ELEVATION

TOPOGRAPHY COURTESY OF DAVIS-KEAYS MINING CO LTD

crosses Figure 9 from southwest to northeast. This belt, though not particularly rich in diabase dykes, contains almost all the quartz carbonate veins known in the area. Nearly all these veins trend northeasterly parallel to the belt and dip vertically or steeply northwest, nearly perpendicular to the axes of the southeasterly plunging folds. Also, within this belt and southwest of Cariboo Creek are large northeasterly trending subvertical fracture zones and buff to orange-weathering dolomitic and ankeritic alteration in the otherwise grey-weathering limestone and calcareous shale. Some of these zones (Fig. 9) contain cupriferous quartz-carbonate veins.

Of all the veins discovered thus far in the area, only the Eagle-Mike vein has been proven to contain economic copper mineralization. This structure has been traced for a horizontal distance of roughly 4,500 feet, and has been explored underground over a vertical distance of 1,600 feet by a system of four levels, three sublevels, and a number of connecting raises. These headings have been driven almost entirely along the vein. Ore-reserve figures released to date by the company, as calculated from this exploration programme, stand at 1,007,360 tons proven at 3.56 per cent copper, 562,320 tons probable at 3.18 per cent copper, and 439,260 tons possible of unknown grade. The above reserves refer only to material lying above the 5800 level, the grade and amount of any mineralization that might occur below this level not yet having been investigated.

Other showings found in the area of Figure 9 can be briefly described as follows:

(1) The showings found in the extreme northeast corner of Figure 9 comprise four small veins in interbedded buff-weathering dolomite and shale. These veins lie roughly on strike with the Eagle vein structure but are more than 6,500 feet away from its northernmost known exposures. The veins are between 1 and 2 feet wide and apparently of limited horizontal extent. Two chip samples taken by the writer across some of the best mineralized material seen at these showings assayed 6.54 per cent copper and 1.2 ounces of silver per ton across 11 inches, and 12.00 per cent copper and 0.2 ounces of silver per ton across 14 inches.

(2) The Keays vein showings lie 6,500 to 9,000 feet southwest of the southernmost known exposures of the Eagle vein and are roughly on strike with it. The showings comprise the Keays and Keays North veins, the closest points of which are separated by approximately 1,500 feet of drift-covered ground. The Keays North vein is 2.5 to 3.5 feet thick and very poorly mineralized to barren on surface. The Keays vein is exposed in a steep gully and on cliffs on the south side of a cirque and originally yielded assays averaging 3.57 per cent copper across 8 feet over a length of 220 feet. Two samples taken by the writer at two locations approximately 200 feet apart and across representative sections of the vein yielded assays of 8.00 and 4.11 per cent copper across 4.5 feet in each case. Diamond drilling carried out by the company in 1969 to test the continuity of the Keays vein at depth and north of the exposures examined reportedly yielded disappointing results, suggesting that the vein does not extend below the cirque floor nor does it connect with the Keays North vein.

(3) The Harris vein lies on Gold Creek, approximately 9,000 feet southeast of the Davis Keays camp. Its surface exposure originally yielded assays averaging 3.77 per cent copper across 7 feet over a 500-foot strike length, but subsequently, a limited amount of underground work and considerable diamond drilling indicated that the vein quickly wanes at depth and to the north. In the same general vicinity the Creek vein does not appear on surface to be of good grade and width, and the Pink vein to

the southeast of Gold Creek appears to be very irregular and of limited horizontal continuity. This vein is characterized by the common occurrence of erythrite. A chip sample taken from the best section of this vein that was seen yielded 3.76 per cent copper, 100 ppm cobalt, and a trace of silver across 30 inches.

(4) The approximate location of the Ridge vein is shown on Figure 9 to be in the uppermost reaches of Gold Creek. Exposures of this vein could not be found on the scree-covered slopes, but semi-massive chalcopyrite mineralization was found at several places in the area. The grade of this material is such that the vein should be located and its width and extent determined.

(5) The Oscar vein is at the top of the ridge that marks the southern watershed of Bonanza Creek. The width and extent of this vein are unknown because of extensive scree cover, but appear to be modest. As suggested by float the vein appears to trend southeasterly across the strike of all the other veins. It consists of massive and semi-massive galena mineralization, a grab sample of which yielded assays of 84.21 per cent lead, 0.05 per cent copper, 0.44 per cent zinc, and 6.9 ounces of silver per ton.

(6) The Sheep vein is reportedly located approximately 4,000 feet northwest of the Eagle vein where it is buried under an extensive mantle of scree. Exposures of this vein could not be found by this writer and its width and grade are therefore unknown.

In summary, of the seven best occurrences of mineralized veins that are known in the area of Figure 9, only the Eagle-Mike vein has been found to contain commercial or nearly commercial amounts of ore-grade material. This vein is also the one with the greatest known horizontal continuity and occurs in a strong fracture zone that lies almost perpendicular to the axes of a large number of closely clustered southeasterly plunging folds. Faults within this zone are common parallel to both walls of the vein but are rare and of limited extent across the plane of the vein. Rock alteration along or near the northeasterly trending fracture planes which locally are occupied by veins commonly include development of graphite and of iron-rich dolomite and ankerite.

WORK DONE: Claims and surface and underground workings mapped; surface geological mapping covering Eagle and Lois claims; underground geological mapping; road construction, approximately 3 miles (access to Lois claims); trenching, 6,055 feet (77,500 cubic yards) on Lois 1 and 2; underground work, 1,418 feet on Eagle claims and 561 feet on Harris claims; underground diamond drilling, 872 feet on Eagle claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 51 (Davis-Keays); 1970, p. 42; Assessment Report 2388.

BOB, RIM, MAD (No. 32, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 31.5′ Long. 125° 33.′ (94K/12E)
LIARD M.D. Between 6,500 and 7,500 feet elevation in the Toad River area, 7 miles west of Yedhe Mountain.

CLAIMS: BOB 1 to 4, RIM 1 to 6, 9 to 13, MAD 1 to 22.

ACCESS: By gravel road and tote road from Mile 437 on the Alaska highway, about 46 miles.

OWNER: ALBERTA COPPER AND RESOURCES LTD., 1502 Cambridge Building, Edmonton 15, Alta.

METAL: Copper.

DESCRIPTION:

This description applies not only to the ground covered by the Bob, Rim, and Mad claims, but also to that covered by the Key, Ann, Geo, and STR claims, approximately as shown on Figure 10. Although the location of the claims with respect to the copper showings is given on this figure to the best of the writer's ability by using available maps, it should be noted that the Bob 1 to 4 claims probably actually lie at least 2,000 feet to the east of their indicated position since they were located on the showings found there.

The oldest rocks in this area are thin-bedded dark grey shale and buff to grey-weathering interbedded shale and dolomite of the Aida Formation which are cut by numerous diabase dykes that trend to the northeast and northwest. The only good exposures of Aida rocks are found in the southwestern part of the area, and mostly in unit 1b (Fig. 10). Elsewhere the shale unit forms poor, low outcrops and extensive scree slopes. The strata dip at moderate angles to the southwest and contain a well-developed slaty cleavage which in the southwestern part of the area dips to the southwest, and in the northeastern part dips to the northeast, thus crudely outlining a cleavage fan about a southeasterly trending axis (Fig. 10). Fold axes, where visible, plunge gently to the south-southeast.

Cambrian sandstone and shale of the Sylvia Formation overlie the Precambrian strata in the southwestern part of the area with an angular discordance of some 30 degrees. The unconformity is marked by a prominent coarse, basal, boulder conglomerate which ranges from a few to several hundred feet thick. Some of the boulders in this conglomerate are 12 to 15 feet in diameter. A few isolated outliers of Cambrian sandstone cap the high peaks in the northern part of the area but here the unconformity is not marked by a coarse boulder conglomerate.

Copper showings may be separated into two groups which are controlled by slightly different structural conditions. The best showings are found in thin-bedded shale in the northeastern part of the area along a marked shear zone which trends north 50 degrees east and is paralleled by at least two diabase dykes that are in places strongly sheared and altered. Chalcopyrite mineralization is found in quartz-carbonate veins that are strongly sheared locally and of variable width, but which have been traced from the ridge top at elevation approximately 7,700 feet for nearly 1 mile to the southwest. Because of poor exposures and the limited amount of trenching done at the time of the writer's visit, it was not clear whether one or more veins occur along this shear zone. Exposures in the upper showings indicated only short, lensy veins, broken and sheared, rather erratically mineralized, and generally less than 3 or 4 feet wide, but trenching downhill to the southwest had uncovered at least one exposure of highly oxidized but visibly well-mineralized vein at least 12 feet wide. It would appear that late faulting has considerably sheared and broken the vein, thus probably making it discontinuous and hard to follow. The age of the diabase dykes along this zone of mineralization is not clear. Dykes follow the shear zone and very closely parallel veins which in several places lie along one of the dyke contacts, but the dyke rock itself, though sheared, commonly bleached, altered, and in places laced with quartz-carbonate veinlets that may carry some malachite, is not mineralized. One might here argue both ways: (a) that the dykes are older than the veins and were altered during mineralization but not mineralized because of their unsuitable nature, or (b) that the dykes are post-mineral, closely follow and

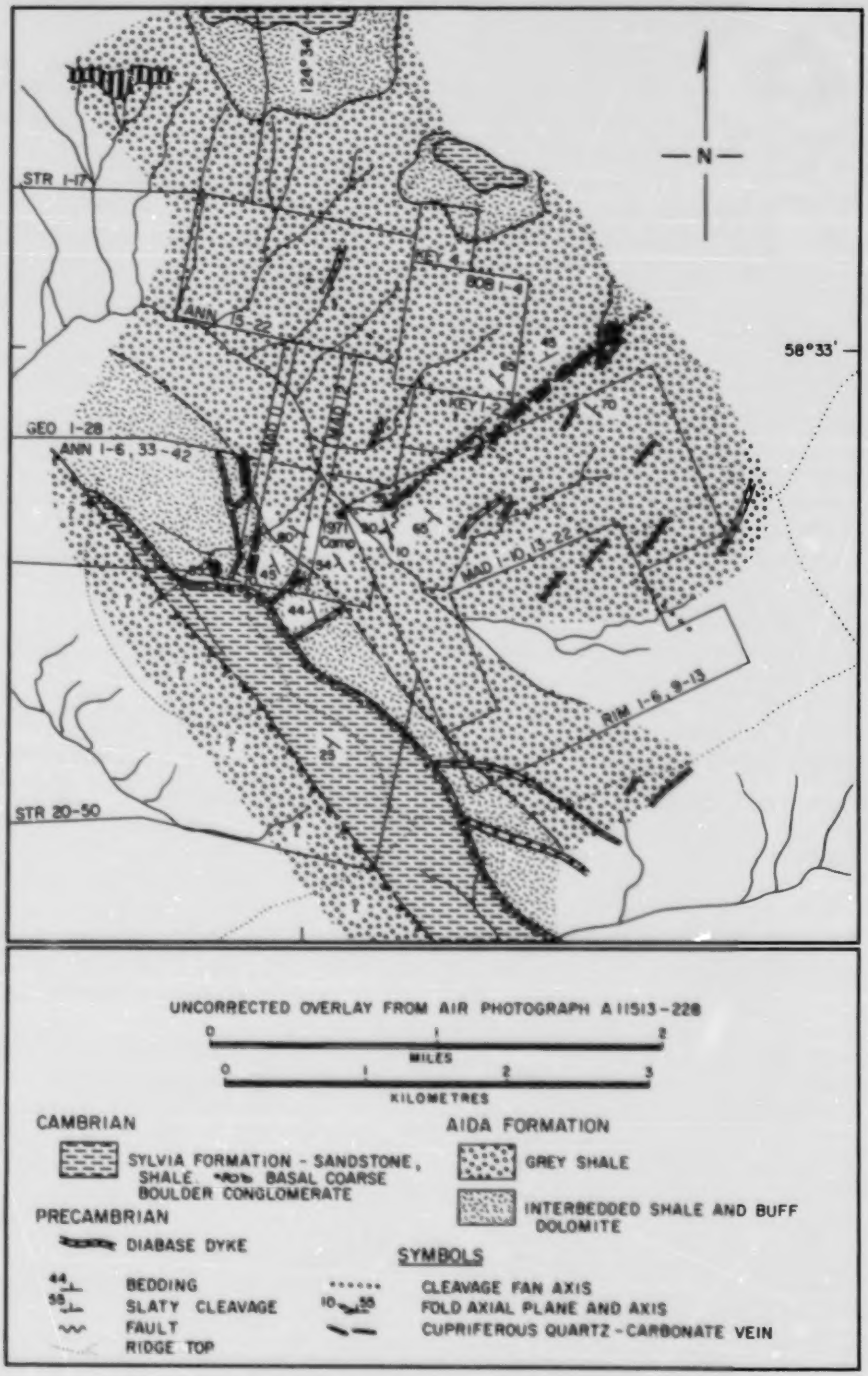

124°34'
N
STR 1-17
KEY 4
BOB 1-4
ANN 15-22
58°33'
MAD 11
MAD 12
KEY 1-2
70
GEO 1-28
ANN 1-6, 33-42
1971 Camp
80
60
10
54
45
44
MAD 1-10, 13-22
RIM 1-6, 9-13
25
STR 20-50
?
UNCORRECTED OVERLAY FROM AIR PHOTOGRAPH A11513-228
0
1
2
MILES
0
1
2
3
KILOMETRES
CAMBRIAN
SYLVIA FORMATION - SANDSTONE, SHALE. BASAL COARSE BOULDER CONGLOMERATE
PRECAMBRIAN
DIABASE DYKE
AIDA FORMATION
GREY SHALE
INTERBEDDED SHALE AND BUFF DOLOMITE
SYMBOLS
44 BEDDING
55 SLATY CLEAVAGE
FAULT
RIDGE TOP
CLEAVAGE FAN AXIS
10 55 FOLD AXIAL PLANE AND AXIS
CUPRIFEROUS QUARTZ - CARBONATE VEIN

Figure 10. Geology of part of the Bob, Rim, Mad, Key, Ann, STR, and Geo claims.

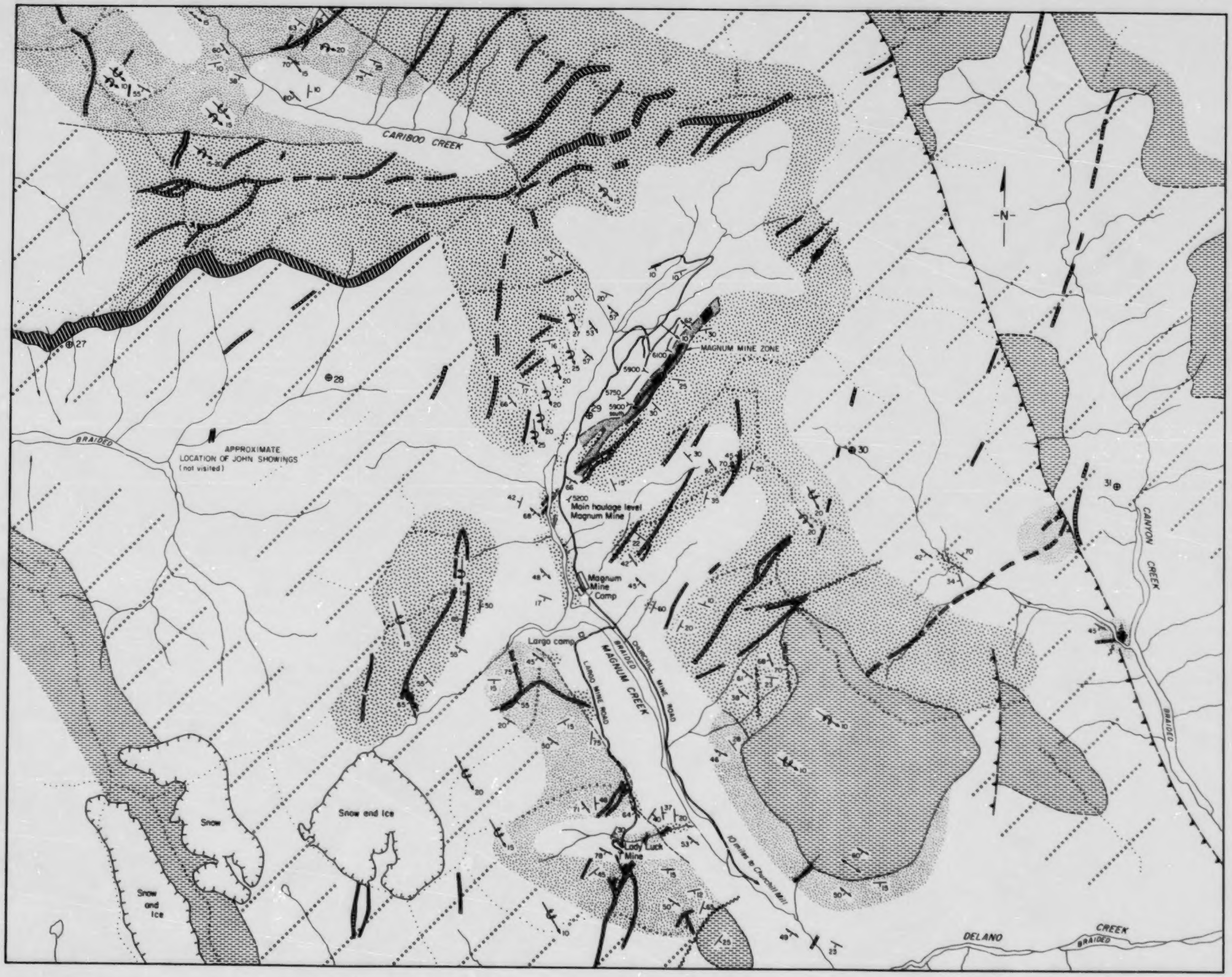

CARIBOO CREEK
MAGNUM MINE ZONE
6100
5900
5750
5900
BRAIDED
APPROXIMATE
LOCATION OF JOHN SHOWINGS
(not visited)
5200
Main haulage level
Magnum Mine
Magnum
Mine
Camp
Largo camp
BRAIDED
MAGNUM CREEK
LARGO MINE ROAD
CHURCHILL MINE ROAD
Snow
Snow and Ice
Snow
and
Ice
Lady Luck
Mine
10 miles to Churchill Mill
DELANO
CREEK
BRAIDED
CANYON
CREEK
BRAIDED
-N-
27
28
29
30
31

Figure 11

GEOLOGY OF THE MAGNUM CREEK AREA

0 1/2 1
MILES

0 1 2
KILOMETRES

LEGEND

CAMBRIAN

▨ **SYLVIA FM.** - Quartzite, conglomerate, minor dolomite

PRECAMBRIAN

▨ **DIABASE DYKE**

AIDA FM.

☐ Undivided shale, limestone, and dolomite

☐ Interbedded dolomite and dolomitic shale

☐ Thin-bedded dark grey calcareous shale, interbedded limestone

SYMBOLS

Cupriferous quartz-carbonate veins	
Zone of crumpling and ankerite alteration at the Magnum Mine	
Bedding	⊥
Slaty cleavage	
Fold axis	
Overturned syncline, anticline	
Fault	
Thrust fault	
Adit portal	
Mine road	
Ridge top	
Canadian government airphoto center	27●

Topo laydown from air photographs no. A11634 27 - 32

segment the veins because they lie in a well-defined shear zone, and were altered and laced with late quartz-carbonate veinlets, which carry some copper, during minor remobilization of sulphides associated with late movements along the fault.

The second group of showings is found southwest of the creek in interbedded shale and dolomite of unit 1b (Fig. 10). The veins here trend northerly to northwesterly and are even more discontinuous and erratically mineralized than those previously described. Late faulting which locally cuts both veins and dykes is evident here also. The northernmost showing indicated on Figure 10 closely parallels a dyke which, for a distance, follows the contact between units 1a and 1b, and at least one instance at this locality was observed of the marginal part of the dyke being clearly mineralized with disseminated chalcopyrite.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet covering Bob 1-4, Mad 11 and 12 Fractions; road construction, 18 miles improving existing road up Toad River and Ram Creek and 8 miles from Churchill (Magnum) mine to Wolf Creek; trenching, 1,700 feet on Bob 1-4 and Mad 9; stripping, 30,000 square feet on Rim 3, 11, and 12.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 42.

MAGNUM MINE (No. 27, Fig. B)

By V. A. Preto and A. D. Tidsbury

LOCATION: Lat. 58° 30.6′ Long. 125° 24.2′ (94K/11W)
LIARD M.D. At the headwaters of Delano Creek, between elevations of 5,100 and 6,700 feet.

CLAIMS: Fifty-eight, including ME, DAN, MAC, HI groups.

ACCESS: By 35 miles of gravel road southwest from Mile 401 on the Alaska highway.

OWNER: CHURCHILL COPPER CORPORATION LTD., 1177 West Hastings Street, Vancouver 1.

METAL: Copper (production shown in Table 1).

DESCRIPTION:

The Precambrian sedimentary rocks in this area are all part of the Aida Formation and form a succession several thousand feet thick. In the vicinity of Magnum Creek they consist of a lower unit that is mostly dark grey thin-bedded calcareous shale and interbedded calcareous shale and limestone, and an upper unit of interbedded buff to orange-weathering dolomitic shale and dolomite, locally containing beds of algal dolomite. To the northwest, on Cariboo Creek, a unit of interbedded dolomitic shale and dolomite underlies calcareous shale and limestone that are probably part of the same sequence of calcareous rocks found on Magnum Creek. Although large areas of hydrothermally dolomitized strata have been observed on Cariboo Creek, and extensive ankerite alteration occurs in the Magnum mine zone, it would appear that these portions of the Aida Formation mapped as unit 2 (Fig. 11) are parts of the stratigraphic succession and do not owe their present composition to alteration.

A large number of diabase dykes, ranging from a few to more than 300 feet thick and trending from northeast to east, cut the Precambrian sedimentary rocks. Peculiar to these intrusions in the Magnum Creek area and everywhere else in the Racing River-Gataga River region is the minimal amount of contact metamorphism of the sedimentary host rock. Though the strata surrounding a dyke are commonly bleached for several feet on either side of it, and baked and indurated for a few feet, thin sections of various types of

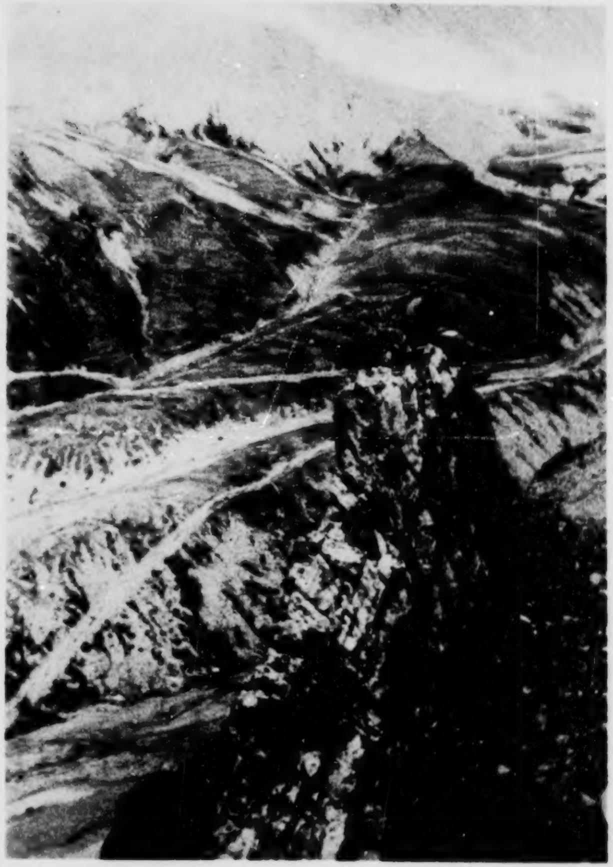


Plate IIA. Cupriferous quartz-carbonate vein in the Magnum mine zone.

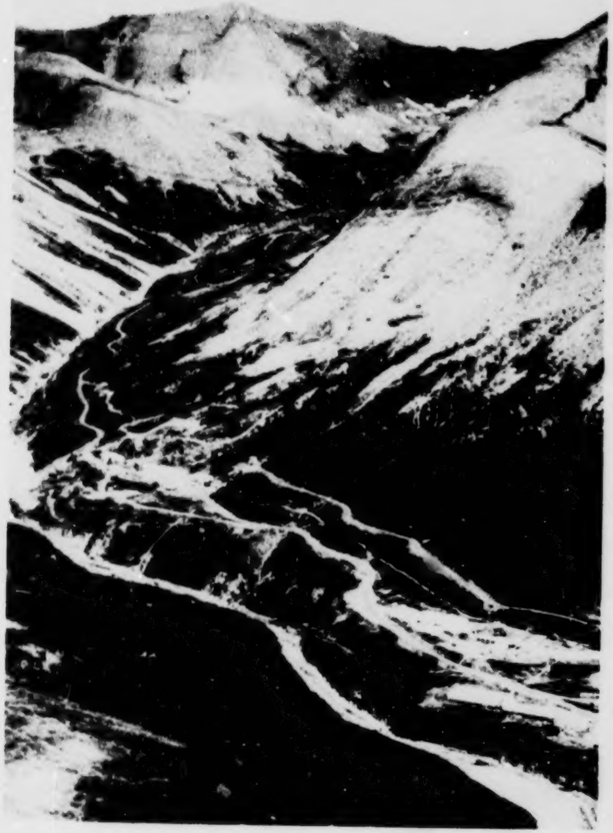


Plate IIB. Magnum mine camp and main haulage level portal viewed from the southwest.

country rock taken at the dyke contact or from inclusions inside some of the largest dykes failed to reveal any sign of contact metamorphism other than some recrystallization or a weak development of a sericite-like mineral. Diabase dykes are fairly evenly distributed throughout the area mapped, and at the Magnum mine follow the same fracture and alteration zone that contains the cupriferous veins. In the mine workings and surface showings, dykes are clearly post-mineral and they cut and interrupt the veining. In the Magnum mine workings some dykes, locally known as 'grey dykes,' are also known to cut transversely across the zone of mineralization and alteration in a general northwesterly direction. These dykes are of trachytic composition and generally only a few feet wide, fine grained, and grey in appearance, with disseminations and stringers of pyrite. They cut sharply across the mineralized veins.

Cambrian rocks of the Sylvia Formation surround the Precambrian to the west, south, and east, and occur as large outliers in the southeastern part of the area mapped. These strata comprise reddish weathering quartzite, grit, conglomerate, and minor grey dolomite. In the Magnum Creek area they overlie the sedimentary rocks of the Aida Formation and the diabase dykes with variable angular unconformity. Generally the unconformity is marked by a basal breccia or cobble conglomerate a few score of feet thick, but immediately south of Delano Creek the towering cliffs on the north side of Mount Roosevelt are formed by an impressive succession of grit and conglomerate at least 3,000 to 4,000 feet thick.

The sedimentary rocks of the Aida Formation are thrown into a large number of folds which plunge gently to the south and southeast. These structures range from a few feet to several hundred feet in amplitude and are invariably asymmetric, with gently dipping west limbs and steep east limbs, and axial planes dipping to the west and southwest. The ubiquitous slaty cleavage found in the rocks of the Aida Formation is axial plane cleavage in these folds. The folds are believed to pre-date both cupriferous veins and diabase dykes, as neither of these appear to have been deformed, and to have controlled, at least in part, the development of fracture zones, such as the Magnum mine zone, which were later occupied by veins and dykes. Within the Magnum mine zone unusual and variable stresses must have prevailed, as the rocks here only are thrown into a multitude of folds with highly variable trends and frequently curved axes. Within this zone the original succession of calcareous strata is conspicuously non-calcareous and the beds of limestone and shale are extensively altered to coarsely crystalline ferroan dolomite and ankerite, and graphitic material, respectively. Rocks of the Sylvia Formation are also folded about south to southeast trending axes, but only in a very broad fashion.

Except for a major thrust fault that partly follows Canyon Creek and was developed during the Mesozoic, faults are not common in the map-area. A number of small faults and shear zones have been mapped, but none appear to be very large. An exception to this is, of course, the Magnum mine zone, within which there has been considerable faulting. Most faults lie parallel to the zone and cut both mineralized veins and dykes, but within the mine workings at least two faults have been mapped which strike across the zone, dip southwesterly at about 40 degrees, and are thought to displace oreshoots in a reverse manner.

The only mineralization known in the area is found in cupriferous quartz-ankerite veins that follow shear and fracture zones that trend from north to northeast. Of these, the only veins of economic importance to date are at the Magnum mine, from which between January 1970 and October 2, 1971, 352,146 tons of ore was produced grading

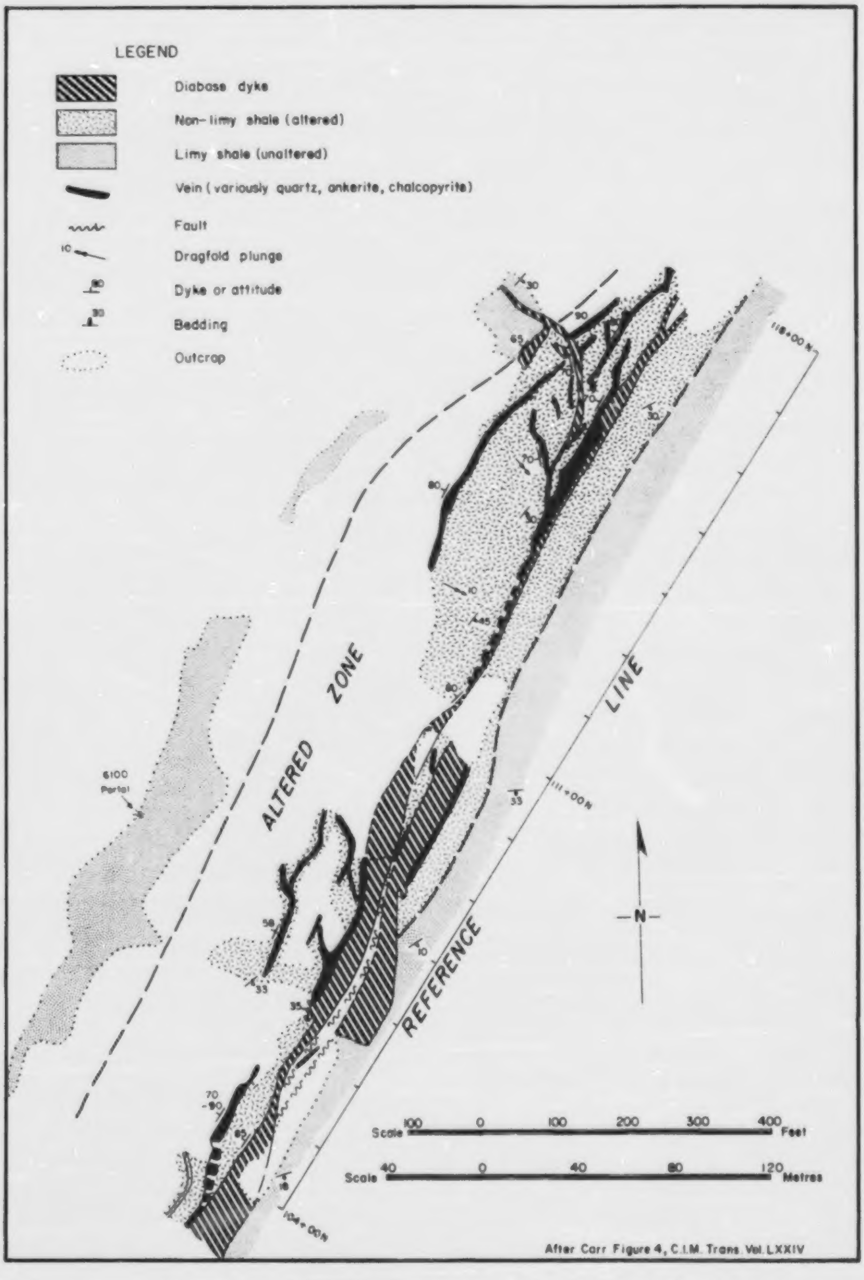

LEGEND
Diabase dyke
Non-limy shale (altered)
Limy shale (unaltered)
Vein (variously quartz, ankerite, chalcopyrite)
Fault
Dragfold plunge
Dyke or attitude
Bedding
Outcrop
ALTERED ZONE
REFERENCE LINE
118+00 N
111+00 N
104+00 N
6100 Portal
N
Scale 100 0 100 200 300 400 Feet
Scale 40 0 40 80 120 Metres
After Carr Figure 4, C.I.M. Trans. Vol. LXXIV

Figure 12. Surface geological map, north part of Magnum deposit.

approximately 3.3 per cent copper. Of this, 347,650 tons was milled to yield 36,519 tons of concentrate. During the same period 36,326 tons of concentrate was shipped, from which 22,198,863 pounds of copper was obtained.

The geology of the Magnum deposit has been described by Carr as follows (1971, pp. 153-156):

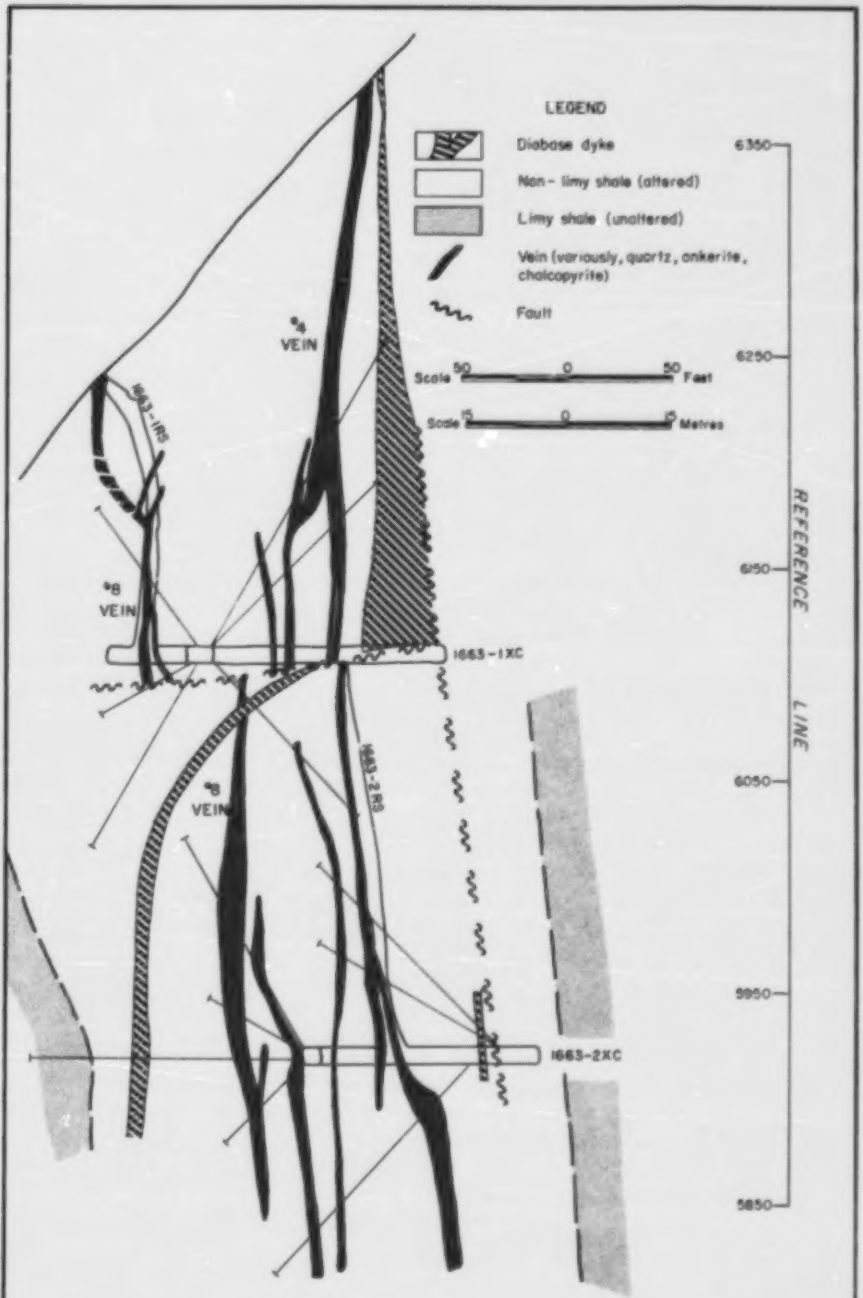
"The zone containing the Magnum vein system is partly explored for a length of 4,500 feet and to a depth of 1,200 feet. It is a zone of deformation, alteration, mineralization and dike intrusion that trends N 35° E, dips steeply and is up to 300 feet wide. It occurs in a sequence of Precambrian limy strata which dip more or less uniformly at low to moderate angles southeastward and apparently form the southeastern limb of a broad anticline the axis of which approximately follows Magnum Creek. The strata on either side of the zone are thin- to medium-bedded rocks which include grey and black limestone, limy argillite and limy shale. Westward across Magnum Creek, the opposite flank of the anticline consists of similar rocks which are locally folded sharply and traversed by dikes. One or more mineralized veins occur west of the creek on the Magnum property, and are to date unexplored.

"Strata in the zone are buckled by numerous small irregular folds, most of which plunge across the zone in southeasterly directions. An intense cleavage is developed, mainly in the least competent beds, but locally pervasively in all strata. The cleavage is partly curved and wavy and it strikes chiefly south-southwest, with a dip of approximately 60 degrees to the east. All strata in the zone are altered to non-limy rocks by decalcification. Alteration has in addition produced graphite liberally in the strongly cleaved rocks and ankerite as coarse metacrysts and wholesale replacements in the buckled parts of beds. Probably as a result of alteration, pyrite forms seams and disseminations more or less concordant to bedding in strata of the west part of the zone.

"The mineralized veins of the Magnum system lie more or less central in the zone and were formed later than the folds and cleavage, both of which they transgress. They consist of varying proportions of ankerite, quartz, chalcopyrite and locally pyrite, together with partly replaced remnants of the sedimentary host rock. The principal veins strike with the zone and most are nearly vertical. As many as ten such veins have been noted, although some may prove to be extensions of the others. They vary in width from less than 3 feet to as much as 25 feet and possess a continuity, both on strike and in depth, which is measured in hundreds of feet. As many as three parallel principal veins occur within a width of 150 feet or less across the zone. Numerous subsidiary veins are encountered, of which some are parallel to the principal veins and others, with a mainly northerly trend, are oblique and, in part, are branches of the principal veins (*Figure 12*).

"From their appearance, the veins were emplaced largely by replacement and in several stages. The first stage was principally ankerite with only minor quartz and sulphide, and the least mineralized portions of the veins apparently progressed little beyond this stage. One or more later stages caused the introduction of quartz and sulphides, principally chalcopyrite, as veins and patches mostly within or adjoining the ankerite veins.

"Pyrite is locally prominent, but in general amounts to less than an estimated 10 per cent of the total sulphides in the ore. The precious metal content in the ore is negligible. The association of chalcopyrite with quartz is close, although in places the quartz is so subordinate in amount that veins, or parts of veins, appear to be comprised of massive chalcopyrite. Chalcopyrite is noticeably increased, for example, where a vein jogs or locally changes direction. Such jogs affect the vein only for a few feet and their shape is


LEGEND
Diabase dyke
Non - limy shale (altered)
Limy shale (unaltered)
Vein (variously, quartz, ankerite, chalcopyrite)
Fault
Scale 50 0 50 Feet
Scale 15 0 15 Metres
6350
6250
6150
6050
5950
5850
REFERENCE LINE
#4 VEIN
#6 VEIN
#8 VEIN
1663-1RS
1663-1XC
1663-2RS
1663-2XC
FACING NORTHEAST

After Carr Figure 5, C.I.M. Trans. Vol. LXXIV

Figure 13. Vertical geological section on 114N, Magnum vein system, from surface to 5850 feet elevation.

such as to displace the northern part of the vein westward or, alternatively, the upper part westward by a few feet. The latter sense of displacement is effected also by at least one of several minor intra- and post-mineral faults which occur in the north part of the mine. These mineralized faults dip at about 40 degrees southwestward, and the one in question displaces the the upper parts of two principal veins a distance of about 30 feet west on the strike of the fault (*Figure 13*).

"Although little in the nature of local controlling structures is seen to explain in detail the emplacement of the veins, the occasional preservation within and along the veins of septa composed variously of schistose wall rock and of brecciated vein quartz probably indicates the former existence of narrow shear zones where veins now exist. Apparently parts of the veins formed initially as fine-scale stockworks of ankerite and quartz in fractured rock, because crowded ghost-like remnants of rock are locally present.

"A post-ore diabase dike of irregular shape and generally steep dip closely follows the southeast side of the vein system and invades it progressively southward in the zone. The dike is partly less than 10 feet wide in the north part of the zone, but it widens southward and splits locally into two or more parallel branches with an aggregate width which may exceed 150 feet. In places, the dike becomes sill-like and, as shown on *Figures 12* and *13*, subsidiary dikes extend west across the vein system. Along part of its length, the main dike is followed by one or more steep faults, with unknown displacement, near to which the diabase is propylitically altered. The dike is a hindrance because, in the north part of the mine, it adjoins one or more ore veins, and locally invades and destroys them. In the south part of the mine, the dike is even more destructive, because it is emplaced partly inside the vein system and either obliterates or displaces the greater part of the veins."

Approximately 3,300 feet southwest of the Magnum mine camp at elevation 6,200 feet, on a steep slope on the west side of Magnum Creek, are other showings, locally well mineralized with chalcopyrite and some pyrite. These lie almost on strike with the Magnum mine zone, but have no apparent structural connection with it. The showings consist of a sheeted vein 5 to 6 feet wide which trends slightly west of north and dips steeply to the west, and of a body of quartz-rich breccia 25 feet in diameter and well mineralized with chalcopyrite and pyrite. The vein follows a shear zone and can be followed northward from the main showing for several hundred feet. Immediately uphill of the showings is a diabase dyke which trends easterly, dips steeply to the south, and is broken and weakly mineralized along the same shear which contains the vein. Westward from the main showing several pands and sections of poorly mineralized vein follow the footwall of the dyke for at least 600 feet.

Other showings that were visited during mapping include narrow veins well mineralized with bornite and hematite found along northerly trending shears high on the slopes east of Magnum Creek, 1 mile southeast of the Magnum mine camp, and four quartz-carbonate veins on Canyon Creek 1.75 miles upstream of its confluence with Delano Creek. The veins at this last showing are exposed for a short distance in crumpled dolomite and graphitic shale along the sides of the creek and trend north 15 to 25 degrees east. They range from 1.5 to 5 feet wide and are for the most part poorly and sporadically mineralized with chalcopyrite.

WORK DONE: In 1971 the mine was operated until October 1st, when, due to low metal prices, it was closed and left under the supervision of a resident caretaker. During the year underground work consisted of 10,000 feet

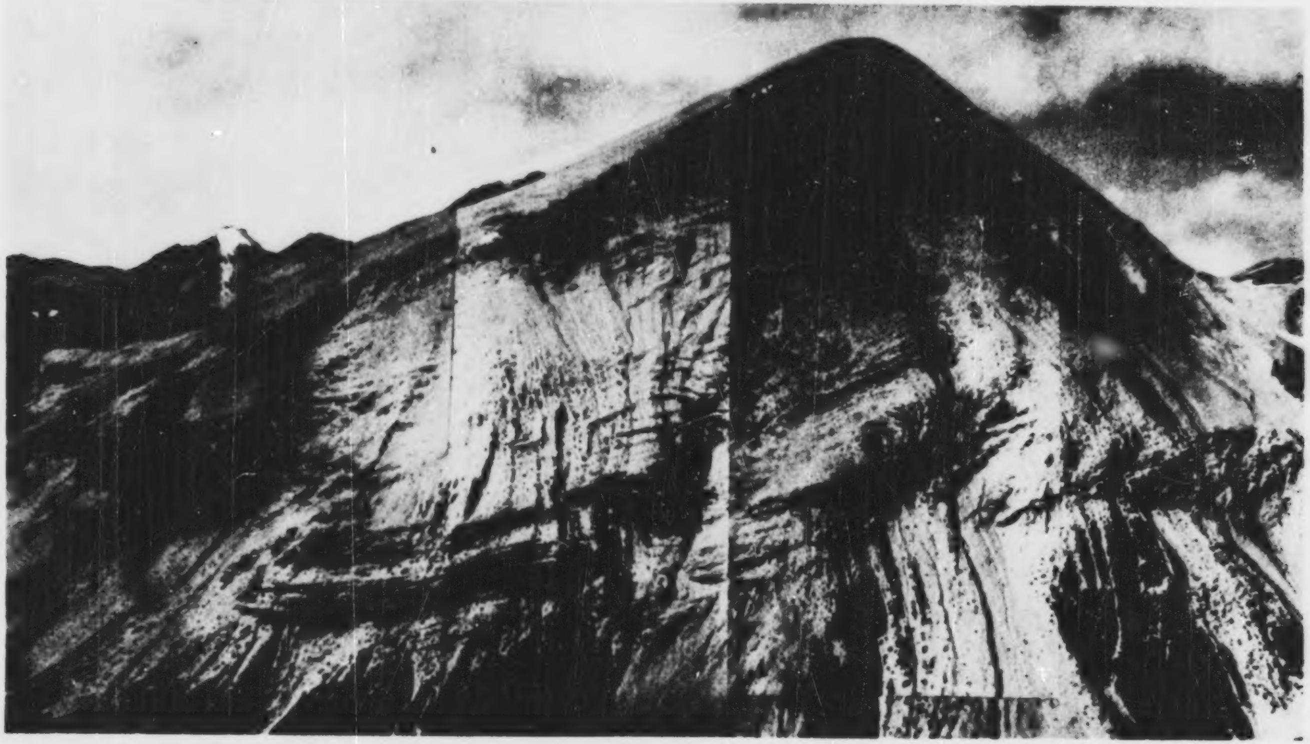


Plate III. Folds in interbedded carbonate and shale rocks of the Aida Formation as seen from the Magnum mine 5900 level portal, looking northwest across Magnum Creek.

of drifting and raising and 18,000 feet of diamond drilling in 110 holes. Other work included the preparation of a new tailings dam and disposal area.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 43, 44; Carr, J. M., 1971, Geology of the Churchill Copper Deposit, *C.I.M.* Trans., Vol. LXXIV, pp. 152-156; Assessment Report 3535.

BY (No. 24, Fig. B)

LOCATION: Lat. 58° 30'-33' Long. 125° 18'-21' (94K/6W, 11W)
LIARD M.D. On the south and southwest slopes of Yedhe Mountain, 100 miles southwest of Fort Nelson, at elevations of 5,000 to 8,000 feet.
CLAIMS: BY 1 to 40.
ACCESS: By helicopter from the Alaska highway, 20 miles.
OPERATOR: TANJO MINES LTD., 12503 Grandview Drive, Edmonton, Alta.
WORK DONE: Magnetometer and electromagnetic surveys covering 22 line-miles.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 43; Assessment Report 3317.

MARG (No. 2, Fig. B)

LOCATION: Lat. 58° 29.3' Long. 125° 21' (94K/6W)
LIARD M.D. One hundred miles west of Fort Nelson, 2 miles northwest of Mount Roosevelt near Delano Creek, at elevations of 4,500 to 7,500 feet.
CLAIMS: MARG 1 to 20.
ACCESS: By helicopter from Fort Nelson.
OWNER: Estey Agencies Ltd.
OPERATOR: VALLEX MINES LTD., 404, 540 Burrard Street, Vancouver 1.
WORK DONE: An airborne magnetometer survey covering 40 line-miles was done during 1970.
REFERENCE: Assessment Report 3145.

SHAW (No. 2, Fig. B)

LOCATION: Lat. 58° 28'-30' Long. 125° 17'-22' (94K/6W)
LIARD M.D. At confluence of Magnum and Delano Creeks, 3 miles south of Churchill Copper mine, at elevations of 3,000 to 9,000 feet.
CLAIMS: SHAW 1 to 34.
ACCESS: Via the Churchill Copper haulage road which leaves the Alaska highway at Mile 401.
OWNER: MUNDEE MINES LTD., 404, 550 Burrard Street, Vancouver 1.
DESCRIPTION: The area is underlain by Proterozoic sedimentary rocks and conglomerates of the Sylvia Formation.
WORK DONE: Aeromagnetic survey in 1970.
REFERENCE: Assessment Report 3024.

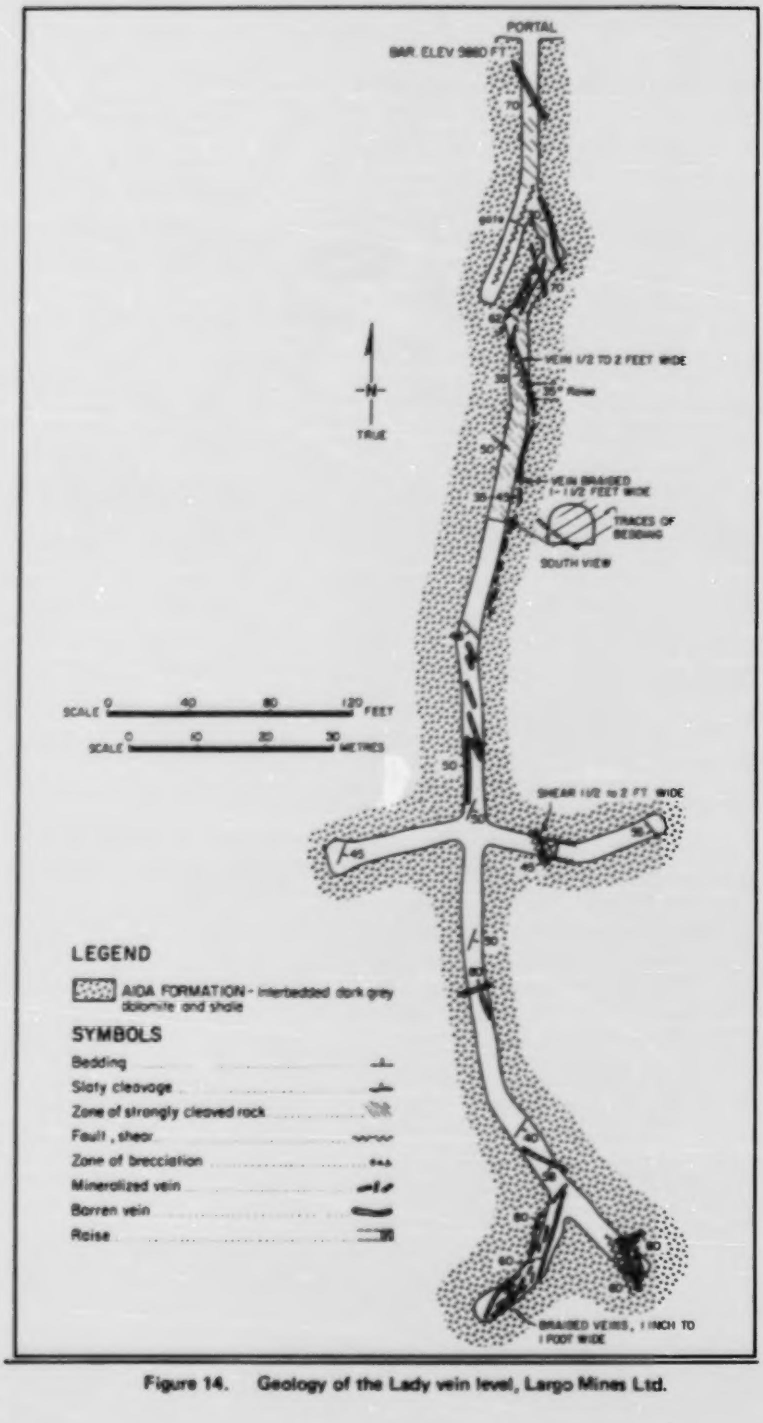

PORTAL
BAR. ELEV 5980 FT
70
gate
70
70
62
VEIN 1/2 TO 2 FEET WIDE
35° Raise
30
50
VEIN BRAIDED
1-1 1/2 FEET WIDE
35-40
TRACES OF BEDDING
SOUTH VIEW
N
TRUE
SCALE 0 40 80 120 FEET
SCALE 0 10 20 30 METRES
50
50
SHEAR 1 1/2 to 2 FT WIDE
45
40
30
30
80
40
35
80
60
80
60
BRAIDED VEINS, 1 INCH TO 1 FOOT WIDE
LEGEND
AIDA FORMATION - interbedded dark grey dolomite and shale
SYMBOLS
Bedding
Slaty cleavage
Zone of strongly cleaved rock
Fault, shear
Zone of brecciation
Mineralized vein
Barren vein
Raise

Figure 14. Geology of the Lady vein level, Largo Mines Ltd.

LADY LUCK, LOLI (No. 40, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 28' Long. 125° 23.8' (94K/6W)
LIARD M.D. On the west side of Magnum Creek approximately 1 mile south of the Magnum mine camp.

CLAIMS: LADY LUCK 1 to 12, LOLI 1 and 2, LADY 1 to 6, BOX 1 to 16, NIP 1 to 6.

ACCESS: By a 1.5-mile road branching off the Magnum mine road.

OWNER: LARGO MINES LTD., 1110, One Bentall Centre, Vancouver 1.

METAL: Copper.

DESCRIPTION: The workings of the Lady Luck are slightly more than 1 mile south of the Magnum mine camp and on the west side of Magnum Creek. These comprise approximately 900 feet of drifts and crosscuts on one level, and two raises totalling approximately 200 feet. The geology of the level workings of the Lady Luck is shown on Figure 14. Although some high assays have been obtained from the surface showings on the precipitous cliffs above the portal, examination of these showings and of the underground workings suggests that the northerly trending veins are very irregularly mineralized, discontinuous, and truncated to the south by a system of branching diabase dykes.

WORK DONE: None in 1971.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 44.

MEINDL (No. 28, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 25.6' Long. 125° 36' (94K/5E)
LIARD M.D. At approximately 7,000 feet elevation, 10 miles southwest of the Magnum mine, on the southeast fork of the Toad River, 35 miles south of Muncho Lake.

CLAIMS: MEINDL 1 to 20.

ACCESS: By helicopter from the Churchill Copper (Magnum) mine, 10 miles.

OWNER: Windermere Exploration Ltd.

OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

The Precambrian sedimentary rocks in this area (Fig. 15) are interbedded orange to buff-weathering dolomite and shale, and grey-weathering shale and dolomite of the Aida Formation, conformably overlain by strongly cleaved grey and dark grey shale and slate of the Gataga Formation. These strata dip moderately to the west and southwest, contain a well-marked slaty cleavage which dips steeply to the southwest, and are cut by a large number of Precambrian diabase dykes which mostly trend slightly west of north. In the western part of the area the Precambrian succession is unconformably overlain by Cambrian shale and thick-bedded dolomite of the Sylvia Formation, the unconformity being marked in places by a basal boulder conglomerate up to 60 feet thick. Faulting in the area trends in two main directions. Prominent northwest trending faults and shear zones occur in the west-central part of the area mapped and are locally paralleled by diabase dykes. In the centre of the area, where most of the copper mineralization is

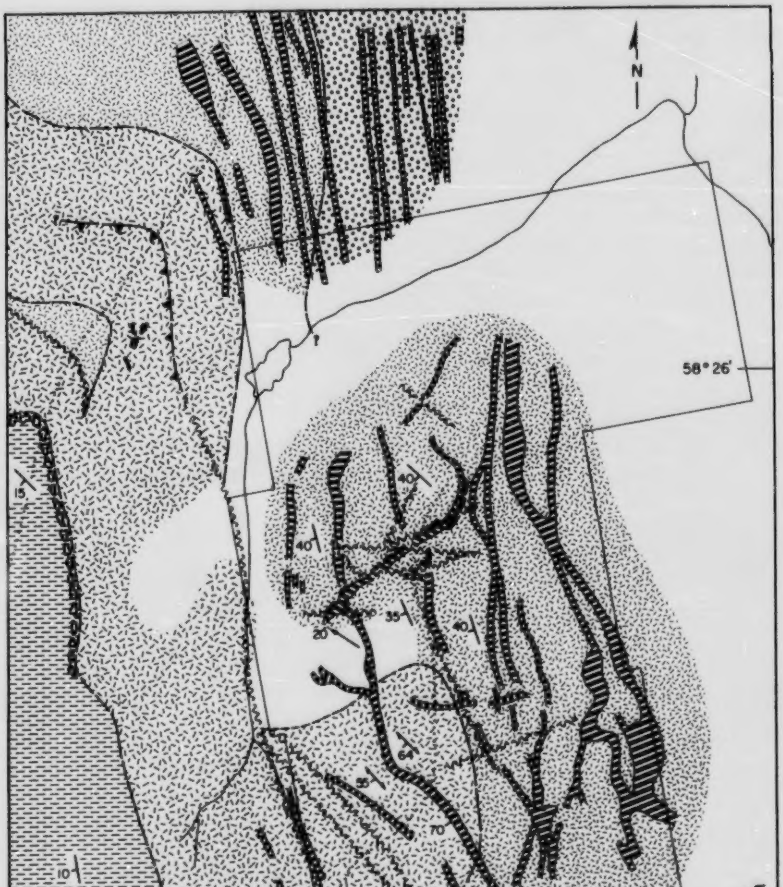

N
58° 26′
125° 37′
MEINDL 1–20
15
10
40
40
20
35
40
64
35
70
60
0
1/4
1/2
3/4
MILES
0
1/2
1
KILOMETRES
CAMBRIAN
SYLVIA FM. – Dark grey-weathering shale and interbedded grey thick-bedded dolomite. Basal boulder conglomerate
PRECAMBRIAN
DIABASE DYKES
GATAGA FM. – Grey and dark grey-weathering strongly cleaved shale and slate
AIDA FM.
Grey-weathering shale and dolomite
Orange to buff-weathering dolomite and interbedded shale
Mineralized quartz-carbonate veins
Inferred thrust fault
Fault
Slaty cleavage
Bedding
Ridge lines
Modified from company plans

Figure 15. Geology of the Meindl claims (modified from company plans).

found, east and northeast trending faults segment the diabase dykes and probably the veins.

With the exception of a few small veins of unspecified grade that are found in Gataga Formation shale in the northwest part of the area, all the known copper mineralization occurs in quartz-carbonate veins which cut interbedded dolomite and shale of the Aida Formation and follow a northeast trending dyke in the centre of the area mapped. The dyke ranges from less than 50 to more than 150 feet wide and is cut by faults in at least three places. Short, lensy quartz-carbonate veins, which range up to 80 feet long are found along both sides of the dyke over a strike length of about 2,400 feet. Although in some places the veins come in direct contact with the dyke and occur as short lensy segments plastered along its walls, no clear unequivocal evidence was observed by this writer to indicate whether the veins or the dyke are the youngest.

At several places it appears that the veins are remnants of early veins that were cut and nearly obliterated by the dyke, but at other localities parts of the dyke contain traces of pyrite and chalcopyrite to a depth of a few inches from the vein contact. This writer, however, is inclined to interpret the very modest amount of sulphides found in the dyke as being due to remobilization during dyke intrusion, and to consider the dyke post-vein.

Copper content of the veins determined from a considerable number of chip samples taken by company personnel in 1971 ranges from slightly more than 1 per cent across a 2-foot width to approximately 15 per cent across a 3.7-foot width. Though segments of the veins are well mineralized, they are in general discontinuous, lensy, and of modest width, seldom exceeding 4 feet, so that at present none are economic.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering Meindl 9-12.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.* G.E.M., 1970, p. 45; Assessment Report 3216.

TORO, L (No. 12, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 22.5' Long. 125° 11.5' (94K/6E)
LIARD M.D. At elevation 7,400 feet, approximately 1 mile southwest of the junction of Goat Creek and Churchill Creek, 40 miles south of Milepost 401 on the Alaska highway.

CLAIMS: Approximately TORO 1 to 8, L 32, 34, 36 (formerly DAVIS).

ACCESS: By helicopter, 8 miles south from the Churchill Copper concentrator.

OWNER: CHURCHILL COPPER CORPORATION LTD., 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

The Precambrian sedimentary rocks in the vicinity of the showings are interbedded dolomite and slate of the Aida Formation (Fig. 16), strongly folded on axes which plunge gently to the southeast in most cases. Bedding in these sedimentary rocks dip at various angles to the northeast and southwest because of the strong folding. To the east, and several thousand feet below the showings, the Aida strata are conformably underlain by clastic sedimentary rocks of the Tuchodi Formation. In the vicinity of the showings the Precambrian sedimentary rocks are cut by at least three large, northerly trending diabase dykes which in the western part of the area mapped are spectacularly truncated and

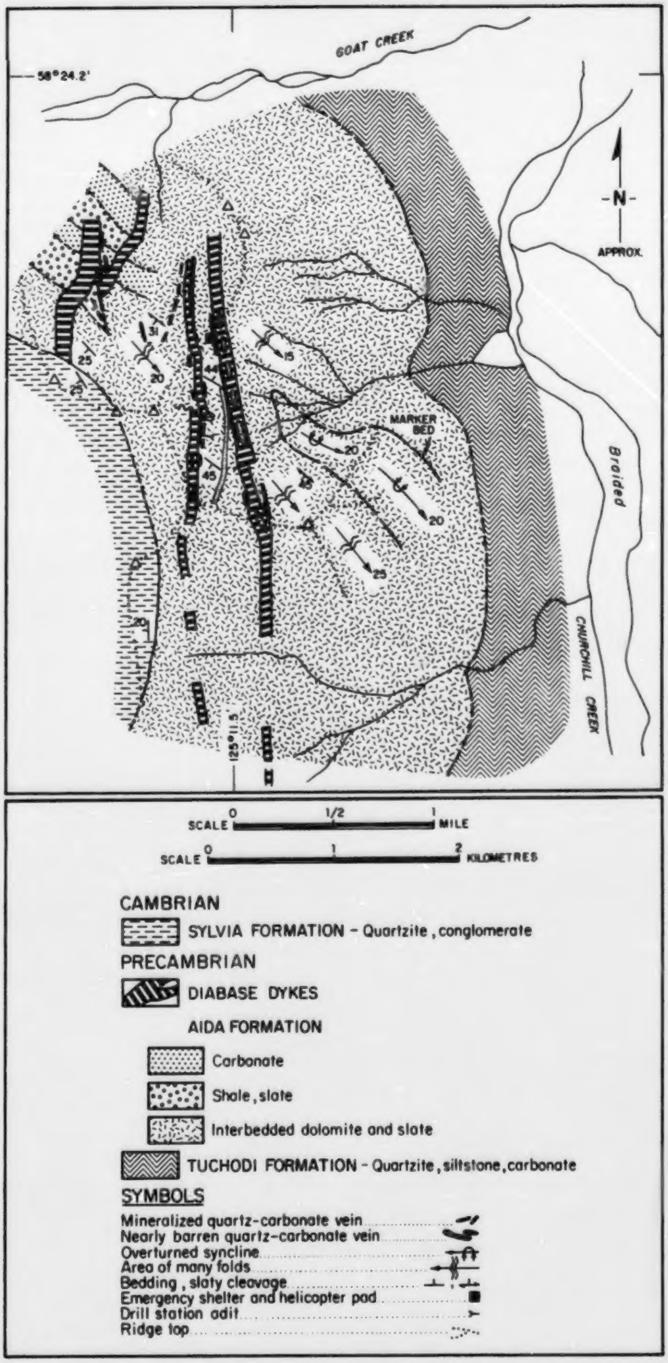

GOAT CREEK
58°24.2'
125°11.5'
N
APPROX.
MARKER BED
Braided
CHURCHILL CREEK
31
20
25
25
44
45
45
15
20
20
25
20
SCALE 0 1/2 1 MILE
SCALE 0 1 2 KILOMETRES
CAMBRIAN
SYLVIA FORMATION - Quartzite, conglomerate
PRECAMBRIAN
DIABASE DYKES
AIDA FORMATION
Carbonate
Shale, slate
Interbedded dolomite and slate
TUCHODI FORMATION - Quartzite, siltstone, carbonate
SYMBOLS
Mineralized quartz-carbonate vein
Nearly barren quartz-carbonate vein
Overturned syncline
Area of many folds
Bedding, slaty cleavage
Emergency shelter and helicopter pad
Drill station adit
Ridge top

Figure 16. Geology of the Toro claims (uncorrected overlay from airphoto CR 446-183).

unconformably overlain by varicoloured clastic Cambrian strata of the Sylvia Formation.

Copper mineralization occurs mostly as lenses and stringers of chalcopyrite in quartz-carbonate veins which in part follow the sides of two of the diabase dykes. The veins are exposed intermittently for a strike distance of more than 6,000 feet and vary considerably in width and degree of mineralization. As crudely shown on Figure 16, some of the more continuous veins are essentially barren. The best vein, which was the object of some exploration work in 1966, has an average width of 8 feet, though locally may be 30 feet wide, and is exposed for approximately 500 feet along strike. As sampled on the surface in 1966, this vein averaged 2.95 per cent copper across 8 feet, but drill intersections from four holes which cut it some 80 feet below the surface showings averaged only 0.66 per cent copper over 13.5 feet. It is the opinion of this writer that these figures give a fair idea of the highly variable and discontinuous nature of the mineralization found in these veins. All the other veins, though locally obviously well mineralized, do not appear to be as rich on the surface as the one described above.

With regard to the relative age of diabase dykes and veins on this property, there is fairly good evidence that those veins that are better mineralized are older than the dykes and occur either as inclusions inside dykes or as panels along or near the sides of dykes. Such relationships were observed at most places except the northwesternmost showings (Fig. 16), which are on precipitous cliffs and could not be examined closely. The easternmost of the two nearly barren veins shown on Figure 16, however, is younger than the diabase dyke which surrounds it, and clearly cuts through and locally causes silicification of the dyke rock.

WORK DONE: The last work done was in the summer of 1966 by Canex Aerial Exploration Ltd. It included geological mapping, sampling, and 692 feet of diamond drilling from two short adits having an aggregate length of 80 feet.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1966, p. 18; Cannon, R. W., 1966, Geological Report, Davis Groups 1 and 2, Churchill Copper–Canex Aerial Exploration Ltd., private report.

HD (No. 3, Fig. B)

LOCATION: Lat. 58° 15.5′ Long. 125° 22′ (94K/5E, 6W)
LIARD M.D. Six miles west-northwest of Churchill Peak at elevations of 4,500 to 8,000 feet.

CLAIMS: HD, totalling 112.

ACCESS: By helicopter from either Mile 442 or 392 on the Alaska highway.

OPERATOR: BLUE GULCH EXPLORATIONS LTD., 1700, 777 Hornby Street, Vancouver 1.

DESCRIPTION: The area is underlain by relatively unfolded shales, mudstones, and argillites of Proterozoic age. Chalcopyrite, malachite, bornite, and pyrite occur in quartz veins in these sedimentary rocks.

WORK DONE: A photogeological, geological, and intense surface prospecting programme was done during 1970.

REFERENCE: Assessment Report 2924.

A (No. 4, Fig. B)

LOCATION: Lat. 58° 14'-24' Long. 125° 11'-22' (94K/3, 6)
LIARD M.D. One hundred air miles west-southwest of Fort Nelson, near Churchill Peak, at elevations of 5,000 to 8,000 feet.
CLAIMS: A, totalling approximately 350.
ACCESS: By helicopter from either Mile 442 or 392 on the Alaska highway.
OWNER: ZENITH MINING CORPORATION LTD., 1770, 777 Hornby Street, Vancouver 1.
DESCRIPTION: The area is underlain by Paleozoic sedimentary rocks.
WORK DONE: A geological study was done during 1970 on A 15-24, 91-100, 325-334, 339-348, 359-368.
REFERENCE: Assessment Report 2923.

GATAGA (No. 31, Fig. B)

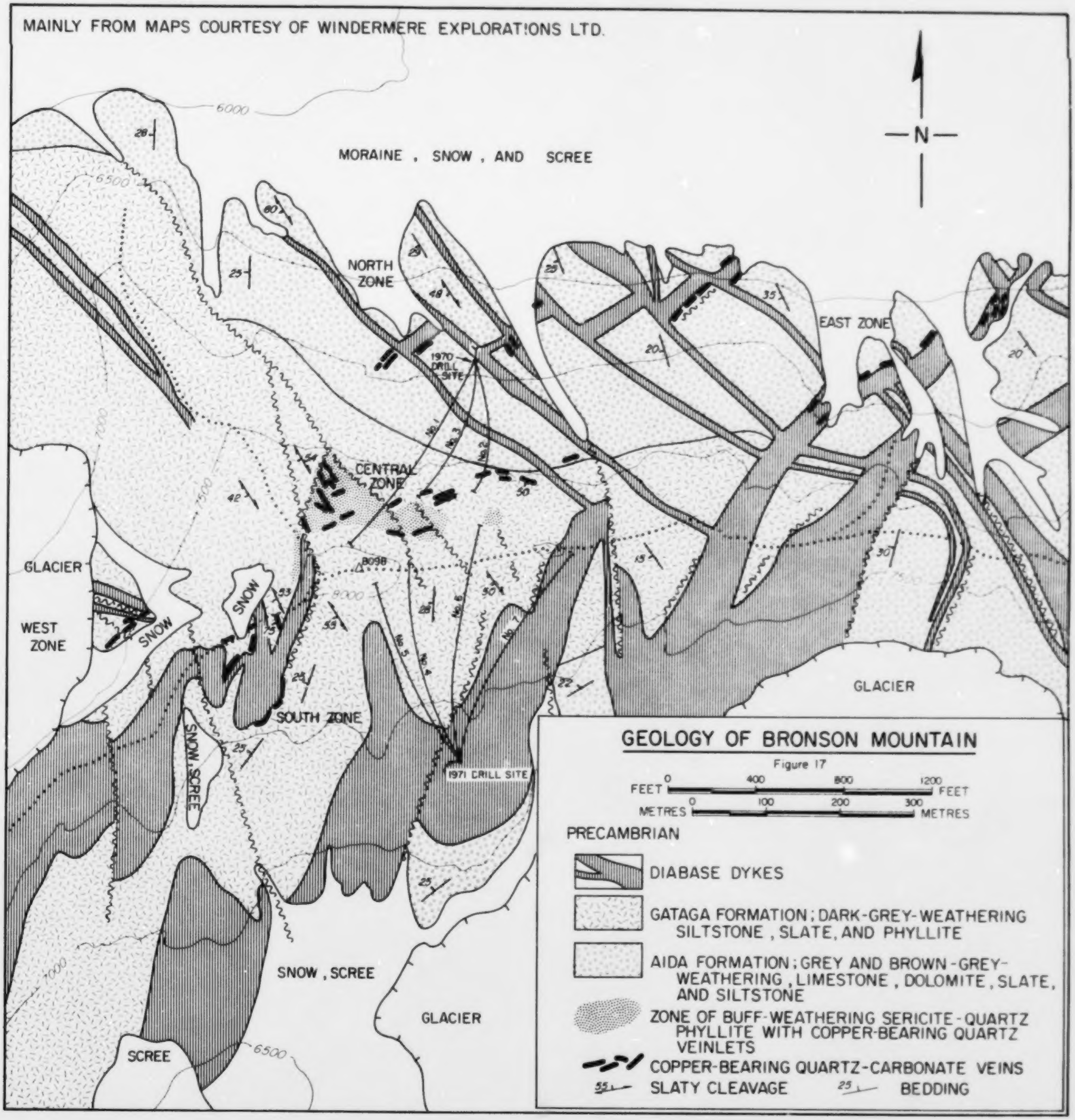
By V. A. Preto

LOCATION: Lat. 58° 13.4' Long. 125° 20.8' (94K/3W)
58° 12.3' 125° 21'
LIARD M.D. At approximately 5,500 feet elevation 6 miles southwest of Churchill Peak, 40 miles southwest of Summit Lake.
CLAIMS: GATAGA 7 to 20.
ACCESS: By helicopter from the Churchill (Magnum) mine, 24 miles.
OWNER: Windermere Exploration Ltd.
OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION:

The geology of the Gataga claims is shown in the northwestern part of Figure 8. The Precambrian sedimentary strata here comprise a succession of grey to brownish grey-weathering shaly limestone and dolomite, and calcareous shale, siltstone, and slate of the Aida Formation, conformably overlain by grey and dark grey-weathering slate, shale, and siltstone of the Gataga Formation. These strata trend northwesterly and dip southwesterly at moderate to steep angles and contain a ubiquitous, well-developed slaty cleavage, which also strikes northwesterly and dips moderately to steeply to the southwest. Numerous steeply dipping diabase dykes, a few to more than 200 feet wide, cut the Precambrian strata and follow shears on zones of fracturing that mostly trend northwest. To the south and southwest, all the above units are unconformably overlain by a flatly dipping sequence of limestone, dolomite, and quartzite that are part of the Cambrian Sylvia Formation.

Copper mineralization on the Gataga claims is confined to quartz-carbonate veins which are found at the Gataga North and Gataga South zones (Fig. 8).

At the Gataga North zone several short, discontinuous veins, mostly less than 5 feet wide, occur in fracture zones near dykes and are moderately well and irregularly mineralized with chalcopyrite and pyrite. The veins occur in wedges and panels of calcareous and dolomitic shale and slate, which are truncated or surrounded by dyke material. One instance of a vein sharply truncated by a dyke was also observed. Although a minor amount of copper mineralization was in places noted to have impregnated the outermost 1 or 2 inches of some dykes, most of the dyke-vein relationships at the Gataga North



GEOLOGY OF BRONSON MOUNTAIN

Figure 17

MAINLY FROM MAPS COURTESY OF WINDERMERE EXPLORATIONS LTD.
N
MORAINE, SNOW, AND SCREE
NORTH ZONE
EAST ZONE
CENTRAL ZONE
1970 DRILL SITE
1971 DRILL SITE
SOUTH ZONE
WEST ZONE
GLACIER
SNOW
SNOW, SCREE
SCREE
8098
6000
6500
7000
7500
8000
No. 1
No. 2
No. 3
No. 4
No. 5
No. 6
No. 7
FEET 0 400 800 1200 FEET
METRES 0 100 200 300 METRES
PRECAMBRIAN
DIABASE DYKES
GATAGA FORMATION; DARK-GREY-WEATHERING SILTSTONE, SLATE, AND PHYLLITE
AIDA FORMATION; GREY AND BROWN-GREY-WEATHERING, LIMESTONE, DOLOMITE, SLATE, AND SILTSTONE
ZONE OF BUFF-WEATHERING SERICITE-QUARTZ PHYLLITE WITH COPPER-BEARING QUARTZ VEINLETS
COPPER-BEARING QUARTZ-CARBONATE VEINS
55 SLATY CLEAVAGE
25 BEDDING

zone indicate that the diabase dykes are younger than the copper-bearing veins.

Mineralization at the Gataga South zone occurs mostly in a 6 to 18-inch vein that occurs along the western contact of a diabase dyke with shale of the Gataga Formation. The vein is of moderate to low grade and is exposed for a few feet on the south side of a small stream gorge, but does not seem to cross the stream, and is either cut off or pinches out against the dyke. Near the vein, the dyke has very fine-grained margins and malachite-coated joint surfaces, but does not contain any primary sulphides.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet on Gataga 9, 11, and 19; trenching, 1,465 feet on same claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 46.

D (No. 6, Fig. B)

LOCATION: Lat. 58° 13.5′ Long. 125° 18.5′ (94K/3W, 6W)
LIARD M.D. Four miles west of Churchill Peak at elevations of 4,500 to 8,000 feet.

CLAIMS: D, totalling 103.

ACCESS: Via helicopter from Mile 442 or 392 on the Alaska highway.

OWNER: FORTUNE CHANNEL MINES LTD., 145, 890 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Chalcopyrite blebs occur in quartz-carbonate fissure veins.

WORK DONE: In 1970, a photogeological, geological, and intense surface prospecting programme was carried out.

REFERENCE: Assessment Report 2869.

BL (No. 7, Fig. B)

LOCATION: Lat. 58° 11′-13.5′ Long. 125° 23′-27′ (94K/3W)
LIARD M.D. Eight miles southwest of Churchill Peak at elevations of 4,000 to 8,000 feet.

CLAIMS: BL, totalling 102.

ACCESS: By helicopter from Mile 442 or 392 on the Alaska highway.

OWNER: BEAUMONT RESOURCES LTD., 1790, 777 Hornby Street, Vancouver 1.

DESCRIPTION: The claims are underlain by quartzite, shales, and impure limestone of Proterozoic age.

WORK DONE: During 1970, a photogeological, geological, and intense prospecting programme was carried out.

REFERENCE: Assessment Report 2885.

BRONSON (No. 26, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 11.3′ Long. 125° 18.2′ (94K/3W)
LIARD M.D. At approximately 7,800 feet elevation 5 miles southwest of Churchill Peak.

CLAIMS: BRONSON 54 to 59, 76 to 88, 94 to 114, 116, BRON 1 to 8, 10, 13 to 32, 39 to 47, 49 and 50.

ACCESS: By helicopter from the Churchill (Magnum) mine, 15 miles.
OWNER: Windermere Exploration Ltd.
OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION:

The area covered by the Bronson claims is in the central part of Figure 8. The mineralized showings are on the north and south faces of Bronson Mountain, a rugged, steep, east trending ridge. A more detailed outline of this area is given on Figure 17. The claims are underlain by brownish weathering shaly limestone, dolomite, and shale or slate of the Aida Formation, conformably overlain by dark grey-weathering shale, slate, phyllite, and minor interbedded carbonate of the Gataga Formation. These strata generally dip to the west and southwest at moderate angles and are cut by a large number of northeast to northwest trending diabase dykes, some of which locally attain widths of 400 to 500 feet. Approximately 3,000 feet west of Bronson Mountain the Precambrian strata are unconformably overlain by a sequence of grey limestone, dolomite, and quartzite that dips gently to the west.

On Bronson Mountain (Fig. 17) the lower slopes are carved out of grey and brown-weathering limestone, dolomite, slate, and siltstone of the Aida Formation, which are conformably overlain by grey, dark grey, and buff-weathering siltstone, slate, and phyllite of the Gataga Formation. This sedimentary succession dips at angles of 15 to 30 degrees to the west and is cut by a strong slaty cleavage that dips at 40 to 55 degrees to the southwest. Several steeply dipping and intersecting diabase dykes follow fracture and fault zones which cut the sedimentary rocks and trend approximately parallel, at right angles to the strike of the slaty cleavage. At dyke intersections it is not apparent if one set offsets the other, rather it seems that the dykes are roughly of the same age and intersect one another without clear crosscutting relationships. North of Bronson Mountain, however, in the northeastern corner of the claims, northeasterly trending diabase dykes clearly cut and offset dykes that trend northwesterly.

Copper mineralization as chalcopyrite and bornite in quartz-carbonate veins occurs on both sides of Bronson Mountain. In addition, on the north face of the mountain between elevations 7,500 and 7,900 feet there is a zone of buff-weathering quartz-sericite phyllite which contains a very large number of mineralized quartz veinlets, as well as some larger, somewhat discontinuous veins. This zone, known as the Central zone, is in the order of 600 feet long and approximately 200 feet wide. It is in part bounded by faults and appears to dip steeply south. Larger veins, locally more than 10 feet wide, trend slightly north of east through the zone and also dip steeply south. High assays across appreciable widths can be obtained locally from these veins, but it appears that individual veins are on the whole short, discontinuous, and irregularly mineralized. During the 1970 field season a short adit was driven on the north slope of Bronson Mountain at elevation 6,850 feet, and from this location three diamond-drill holes inclined at 5, 24, and 30 degrees above the horizontal were drilled to test at depth the continuity of the Central zone. This work proved to be difficult and very costly, and the results were disappointing. During the 1971 field season a second drill site was selected on the south face of the mountain at elevation 7,380 feet, and from it four diamond-drill holes, three dipping at approximately 10 degrees and one at 30 degrees, were drilled to intersect the Central zone at depth. The results of this programme were also disappointing and indicated that neither the numerous veins of the Central zone nor the mineralization continue at depth for any significant distance.

The East zone is located between elevations 6,500 and 7,000 feet on the north face of Bronson Mountain approximately 2,000 feet northeast of the Central zone. This zone was not visited by the writer, but mineralization is here reported to occur in well-defined quartz-carbonate veins that follow a large diabase dyke. Assays from this zone average 1.17 per cent copper across 6 feet.

The West zone occurs in an isolated area of outcrop surrounded by snow and glacial ice approximately 1,500 feet southwest of the Central zone. This zone could not be reached by the writer during his visit, but is reported to consist of a well-defined quartz-carbonate vein mineralized with chalcopyrite and bornite and yielding assays that average 7.88 per cent copper across 5.6 feet. The veins of the West and East zones, and several of the veins in the Central zone lie along a fairly narrow zone of fractures which, though intermittent, appears to be at least 3,600 feet long.

The South zone is found on the south side of Bronson Mountain between elevations 7,600 and 8,000 feet and consists of quartz-carbonate veins and lenses that follow both sides of a diabase dyke that here trends slightly east of north. The veins are mineralized with both chalcopyrite and bornite and are reported to have yielded assays that average 16.04 per cent copper across 2.7 feet. These values, though perhaps indicative of the grade of short sections of some veins, appear to far exceed the average grade of the veins exposed in this zone. It should be noted that, although most veins in the South zone appear to be older than the diabase dyke, locally a different type of mineralization consisting of vuggy quartz veinlets with chalcopyrite and specular hematite is found, which cuts the quartz-carbonate veins and the diabase dyke.

WORK DONE: Surface diamond drilling, four holes totalling 4,526 feet on Bron 19 and 170.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 46; Assessment Report 2487.

428 (No. 25, Fig. 8)

By V. A. Preto

LOCATION: Lat. 58° 10' Long. 125° 15' (94K/3W)
LIARD M.D. At approximately 6,000 feet elevation 3 miles southwest of Churchill Peak, 40 miles south of Summit Lake.
CLAIMS: 428 Nos. 1 to 14, 16, 18 to 37, 39, 42.
ACCESS: By helicopter from the Churchill (Magnum) mine, 21 miles.
OWNER: Windermere Exploration Ltd.
OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION:

The geology of the 428 claims is shown in the eastern part of Figure 8. This area is underlain mostly by grey and dark grey-weathering shale and slate of the Aida Formation, which to the west is overlain by interbedded grey impure limestone, dolomite, and calcareous shale of the same formation. These strata strike northwest and dip gently to moderately to the southwest. Many diabase dykes, ranging to more than 100 feet thick, cut the Aida strata and follow fault and fracture zones that trend northerly to northwesterly. To the east, the southwesterly dipping Gataga thrust trends northwest and separates the Precambrian rocks from a sequence of Cambrian and Ordovician strata.

Copper mineralization is found on the 428 claims in quartz-carbonate veins, which occur at several places along a through-going northerly trending fault and fracture zone that extends to the south into the Book and PJ claims. Along this zone of fractures and faults, mineralized veins are found in three main clusters spaced at roughly 4,000-foot intervals and known as the North, Central, and South zones. In all these zones the veins are typically discontinuous and highly variable both in width and degree of mineralization. They generally dip steeply to the west and range in individual width from a few inches to 10 or 12 feet, but average only 2 to 3 feet.

Strike lengths of vein zones range up to 750 feet and locally reach widths of 75 feet (Assessment Report 3318, p. 6). Chalcopyrite and a small amount of pyrite appear to be the only sulphides present in the veins, which have a quartz-ankerite or quartz-dolomite gangue. In and near zones of veining and strong shearing, the country rock, which is mainly shale with minor interbedded shaly limestone, is altered to a highly graphitic material with the limestone beds recrystallized to coarse aggregates of ankerite or ferroan dolomite. Detailed mapping and considerable chip sampling by company personnel during the 1971 field season indicates that veins are generally far too low in grade to be of economic interest. The values of 25 assays reported range from 0.28 per cent copper across 24 feet to 2.38 per cent copper across 3.5 feet, the latter being one of only two values exceeding 1 per cent copper (Assessment Report 3318, p. 10).

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering 428 Nos. 1-5, 9, 13, 21-24, 26; trenching, 4,650 cubic feet on 428 Nos. 3, 5, 9, and 24.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 46; Assessment Report 3318.

BOOK (No. 25, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 09.8′ Long. 125° 16.5′ (94K/3W)
LIARD M.D. At approximately 6,500 feet elevation on a south-flowing tributary of the Gataga River, 7.5 miles southwest of Churchill Peak.

CLAIMS: BOOK 1 to 10.

ACCESS: By helicopter from the Churchill (Magnum) mine, 25 miles.

OWNER: Windermere Exploration Ltd.

OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

The Book claims lie in the south-central part of the area covered by Figure 8 and straddle the southern extension of the same northerly trending fault zone that is covered by the 428 claims. The claims are underlain by slate, shale, and interbedded impure limestone and shale of the Aida Formation, and by dark grey shale and slate, with minor interbedded limestone and dolomite of the Gataga Formation. These strata dip moderately to steeply to the southwest and contain a generally well-developed slaty cleavage that dips steeply to the southwest. Diabase dykes commonly exceeding 100 feet in width cut the sedimentary rocks and trend northwesterly to northerly.

Copper mineralization occurs in three main zones of quartz-carbonate veins that closely follow the central fault zone. The North zone consists essentially of one northerly trending, near vertical vein that ranges from 3 to 5 feet thick and is exposed intermittently for a strike length of more than 1,500 feet. The vein is usually strongly sheeted and has a quartz-rich gangue, with only subordinate carbonate. Mineralization consists of stringers, patches, and lenses of chalcopyrite and a subordinate amount of coarseiy disseminated galena, and varies considerably in intensity along the vein. In at least two places in the southern part of its exposed length the vein is clearly truncated by diabase dykes which locally trend northwesterly.

The Central zone is on the steep north-facing slope of a ridge, approximately 2,500 feet to the south of the North zone, and was not visited by this writer. In this area a northerly trending vein of considerable width and grade is reported to be exposed for more than 300 feet along strike.

The South zone is on the south-facing slopes of the same ridge as the Central zone, and approximately 1,500 feet to the south. This zone is mostly in dark grey graphitic shale and is the locus of numerous shears and faults, many of which post-date the emplacement of mineralized veins and of small diabase dykes. Mineralization is highly variable and consists of chalcopyrite irregularly distributed in several short lensy veins which are seldom more than 3 feet wide and a few scores of feet long. The zone continues southward beyond the boundary of the Book claims into the PJ claims, where it is known as the Pelletier zone.

WORK DONE: Surface diamond drilling, 16 holes totalling 778 feet on Book 4 and 6 to 8 claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 47.

PJ (No. 25, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 08.6′ Long. 125° 16.5′ (94K/3W)
LIARD M.D. Between 5,000 and 7,000 feet elevation on the Gataga River, 6 miles southwest of Churchill Peak.
CLAIMS: Eighty-six PJ, four ANDREW, six SYBIL.
ACCESS: By helicopter from Fort Nelson, 106 miles.
OWNER: BRALORNE CAN-FER RESOURCES LIMITED, 320, 355 Burrard Street, Vancouver 1.
METAL: Copper.
DESCRIPTION:

The PJ claims flank the Book claims to the west, south, and east and are underlain by grey and dark grey-weathering slate, siltstone, shale, and minor interbedded limestone and dolomite of the Aida and Gataga Formations. These strata in general trend northwesterly and dip gently to moderately to the southwest, but considerable variations in these attitudes are suggestive of widespread folding. The sedimentary rocks also contain a ubiquitous and generally well-developed slaty cleavage which trends to the northwest and dips moderately to steeply to the southwest. Numerous diabase dykes, some more than 100 feet wide, cut the sedimentary rocks and trend from northeast to northwest.

Copper mineralization in quartz-carbonate veins is found at several places, most of which were not visited by this writer.

The Northeast zone is the northernmost known copper occurrence on the PJ claims and lies close to the same fault zone along which the showings of the 428 and Book claims are found. This zone is reported to trend north 25 degrees east and to have an exposed length of approximately 200 feet, along which assays range from 5 to 12.4 per cent copper across widths of 4.5 to 7 feet, the copper being present in chalcopyrite.

The No. 2 zone lies on the eastern part of the claims and consists of chalcopyrite-bearing quartz-carbonate veins and lenses that follow both sides of a northeasterly trending dyke. Assays of samples taken by the company range from 1.45 per cent copper across 3 feet to 13.0 per cent copper across 2.5 feet.

The Pelletier zone is the southern continuation of the Book South zone, the exact location of the claim boundary being somewhat unclear to the writer. The geology of the Pelletier zone is essentially the same as that of the Book South zone, other than that an appreciable amount of bornite is reported from some of the showings. Other smaller and widely scattered showings are found on the PJ claims but no information is available on them.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering PJ 45 and 47; geochemical soil survey, 186 samples covering PJ 12, 14, 43, and 45; induced polarization survey, 6.1 line-miles and electromagnetic survey, 6.1 line-miles covering PJ 12, 14, 16, and 43 to 48; trenching, 635 feet on PJ 14, 16, 43, 45, and 102.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 47; Assessment Reports 2837, 3471, 3472.

ANDREW (No. 1, Fig. B)

LOCATION: Lat. 58° 08' Long. 125° 13' (94K/3E)
LIARD M.D. On the Gataga River, 6 miles south of Churchill Peak at elevations of 4,500 to 8,000 feet.

CLAIMS: ANDREW 1 to 10, 21 to 30, 41 to 50.

ACCESS: By helicopter from Mile 442 or 392 on the Alaska highway.

OWNER: Commercial Oil and Gas Ltd.

OPERATOR: ARCOLL OIL & GAS LTD., 574 Calgary Place One, 330 Fifth Avenue SW., Calgary, Alta.

DESCRIPTION: The property is underlain by shales, mudstones, and argillites of Proterozoic age.

WORK DONE: During 1970 a photogeological, geological, and intense surface prospecting programme was carried out.

REFERENCE: Assessment Report 2888.

P (No. 5, Fig. B)

LOCATION: Lat. 58° 07' Long. 125° 11' (94K/3E)
LIARD M.D. Six miles south of Churchill Peak at elevations of 3,800 to 6,000 feet.

CLAIMS: P 11 to 30, 69 to 88, 131 to 138, 141, 143, 145, 147, totalling 53.

ACCESS: Via helicopter from either Mile 442 or 392 on the Alaska highway.

OPERATORS: FORTUNE CHANNEL MINES LTD., 145, 890 West Pender Street, Vancouver 1 and BEAUMONT RESOURCES LTD., 1790, 777 Hornby Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Blebs of chalcopyrite occur in quartz-carbonate fissure veins.

WORK DONE: During 1970 a photogeological, geological, and intense surface prospecting programme was carried out.

REFERENCE: Assessment Report 2868.

CHOPPER (No. 29, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 07.3′ Long. 125° 12′ (94K/3E)

LIARD M.D. The Chopper claims are approximately 42 miles south of Summit Lake at Mile 392 on the Alaska highway and 8.5 miles south of Churchill Peak. The showings are on the eastern slopes of a sharp east trending ridge locally known as Mount Guano, about 1 mile south of Gataga River.

CLAIMS: CHOPPER 1 to 14.

ACCESS: By helicopter from the Churchill (Magnum) mine, 27 miles.

OWNER: Windermere Exploration Ltd.

OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

The Precambrian rocks in this area are interbedded dolomite and shale of the Aida Formation overlain by dark grey slate, shale, and minor quartzite of the Gataga Formation and cut by several diabase dykes which trend approximately north 30 degrees west. These strata dip moderately to the southwest and are cut by a ubiquitous well-developed slaty cleavage which dips steeply to the southwest. In the southwestern part of the area (Fig. 18) the Precambrian sedimentary rocks are overlain by a sequence of Cambrian strata of the Sylvia Formation, which here dip moderately to the southwest and do not have the slaty cleavage that is so well developed in the underlying rocks. The contact between the two sequences is here sharp and may be marked by a thrust fault.

Copper mineralization occurs in quartz veins, which locally may also have some carbonate gangue, and is generally low grade, discontinuous, and erratically distributed. Some galena is visible in a few veins, and small amounts of lead and silver are reported in assays. The veins are confined to the Precambrian strata and generally follow fractures which are also occupied by dykes. Except for a poorly mineralized 4-foot-wide vein exposed nearly continuously for more than 500 feet along a north 20 degrees east trending fault zone at the northernmost exposure, all the veins trend slightly west of north and appear to be narrow, discontinuous, and weakly mineralized.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering Chopper 3, 5, 7, and 9.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 47.

LYNDA (No. 30, Fig. B)

By V. A. Preto

LOCATION: Lat. 58° 07′ Long. 124° 55′ (94K/2W)

LIARD M.D. At approximately 6,000 feet elevation 37 miles south-southwest of Summit Lake.

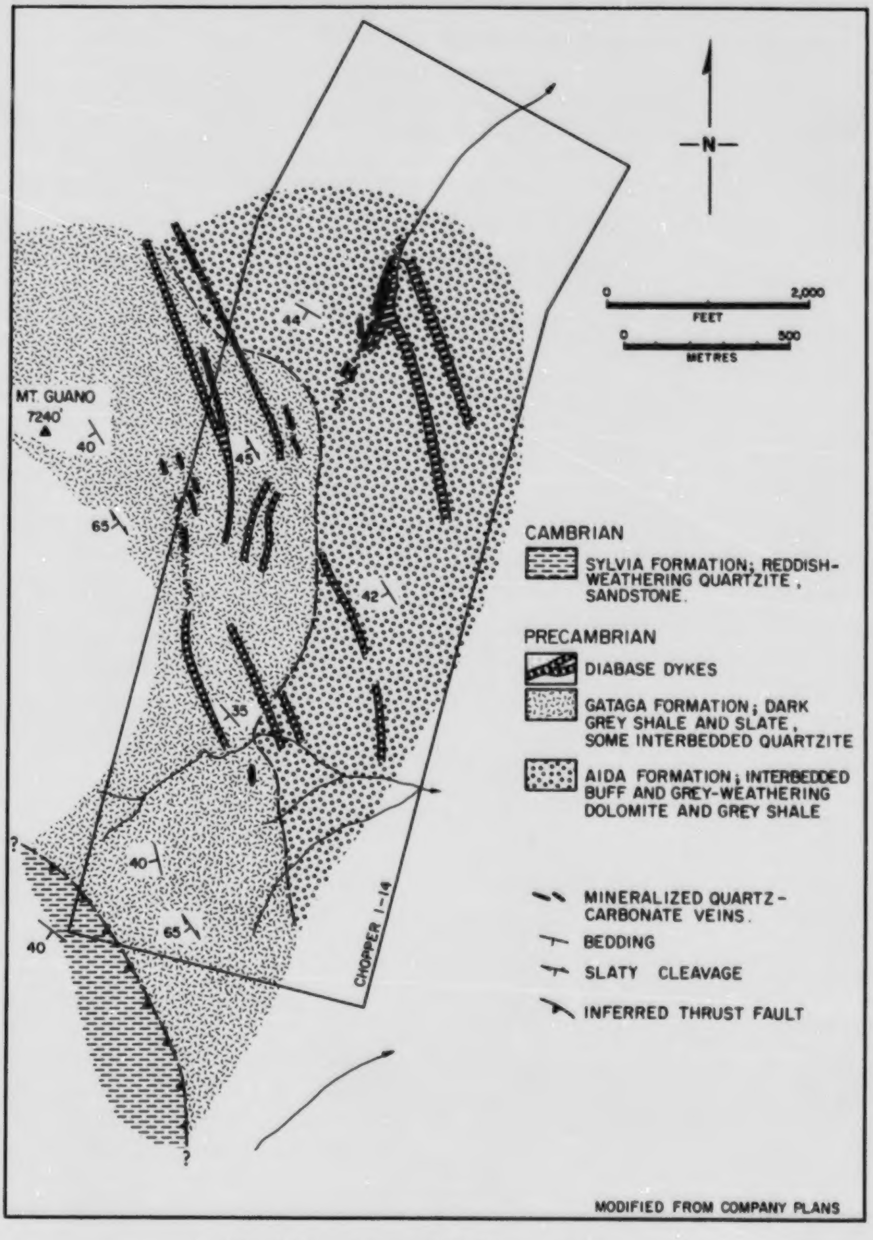

N
0
2,000
FEET
0
500
METRES
MT. GUANO
7240'
40
65
45
44
42
35
40
65
40
CHOPPER 1-14
CAMBRIAN
SYLVIA FORMATION; REDDISH-WEATHERING QUARTZITE, SANDSTONE.
PRECAMBRIAN
DIABASE DYKES
GATAGA FORMATION; DARK GREY SHALE AND SLATE, SOME INTERBEDDED QUARTZITE
AIDA FORMATION; INTERBEDDED BUFF AND GREY-WEATHERING DOLOMITE AND GREY SHALE
MINERALIZED QUARTZ-CARBONATE VEINS.
BEDDING
SLATY CLEAVAGE
INFERRED THRUST FAULT
?
?
MODIFIED FROM COMPANY PLANS

Figure 18. Geology of the Chopper claims.

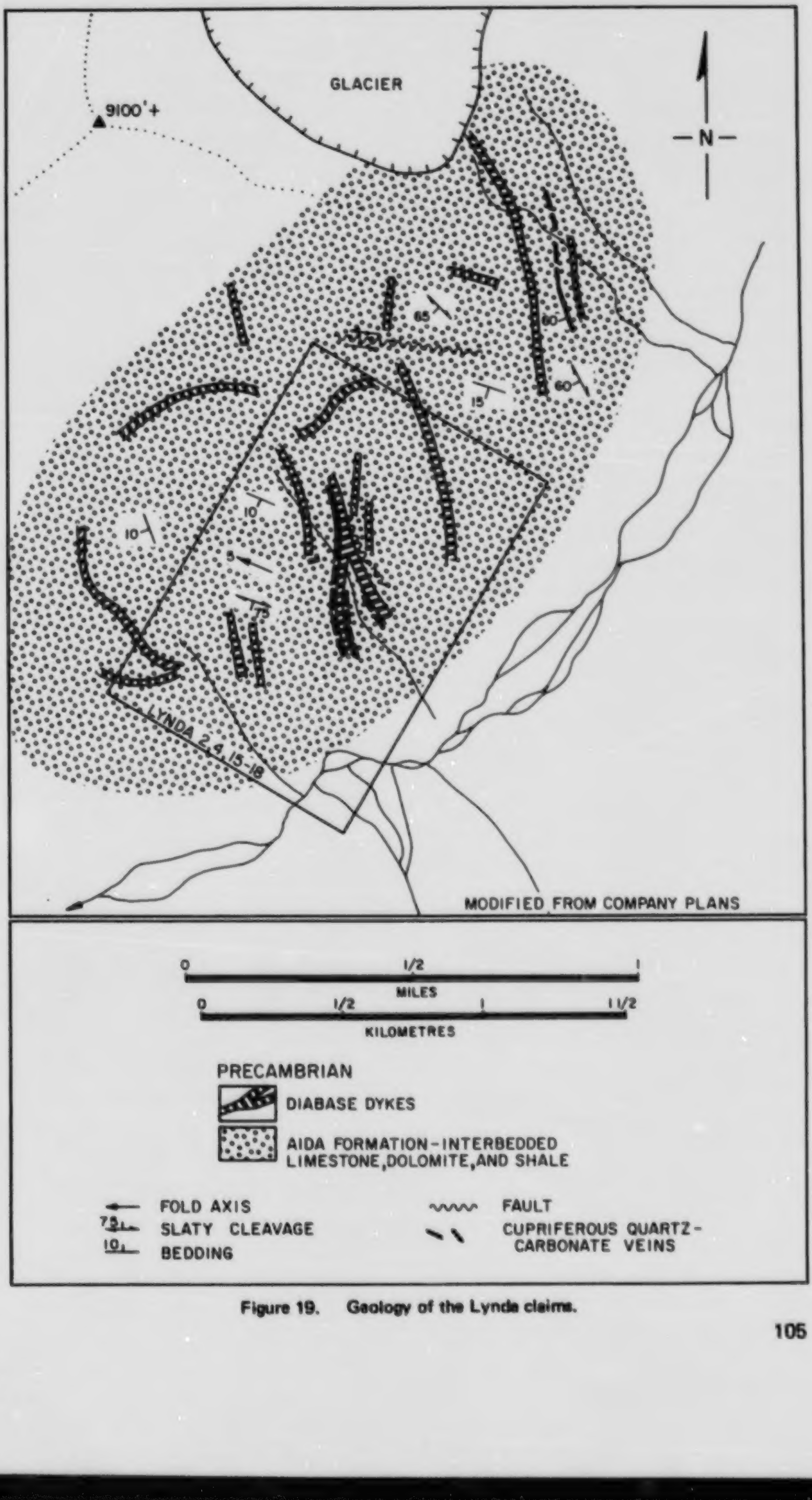

GLACIER
9100'+
N
85
60
60
15
10
10
5
75
LYNDA 2,4,15-18
MODIFIED FROM COMPANY PLANS
0
1/2
1
MILES
0
1/2
1
1 1/2
KILOMETRES
PRECAMBRIAN
DIABASE DYKES
AIDA FORMATION - INTERBEDDED LIMESTONE, DOLOMITE, AND SHALE
FOLD AXIS
75
SLATY CLEAVAGE
10
BEDDING
FAULT
CUPRIFEROUS QUARTZ-CARBONATE VEINS

Figure 19. Geology of the Lynda claims.

CLAIMS: LYNDA 2, 4, 15 to 18.
ACCESS: By helicopter from the Churchill (Magnum) mine, 40 miles.
OWNER: Windermere Exploration Ltd.
OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION:

The rocks in the vicinity of the Lynda claims (Fig. 19) are interbedded shale, shaly limestone, and dolomite of the Aida Formation, which are cut by several of the ubiquitous diabase dykes. The strata are commonly gently folded about northwest trending axes and in general dip gently to the west and southwest. The southwest dipping slaty cleavage that is usually found in the Precambrian rocks of this region is here only weakly developed, probably largely because of the rather competent nature of the limestone and dolomite beds which contain only thin shale interbeds. The diabase dykes here trend northwesterly and easterly.

Quartz-carbonate veins irregularly mineralized with chalcopyrite and pyrite follow a northerly trending fracture zone that is also occupied by a branching diabase dyke. The veins range from a few inches to 4 feet wide and closely follow the dyke contact. The dyke itself does not contain visible mineralization, but quartz-rich, barren veins contain small angular fragments that appear to be altered dyke rock. Within a mineralized vein, chalcopyrite and pyrite are irregularly distributed in lenses and stringers, thus causing the grade across the full width of the vein to change drastically from place to place.

Approximately three-quarters of a mile northeast of the main showing another vein, also northerly trending, can be traced for an appreciable distance along the hillside, but it is narrow and generally poorly mineralized.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering Lynda 2 and 15; trenching, 576 cubic feet on Lynda 15.

KECHIKA 94L

LINDA, WEST (No. 8, Fig. B)

LOCATION: Lat. 58° 13′ Long. 127° 10′ (94L/3E)
LIARD M.D. At approximately 5,800 feet elevation in a cirque at the headwaters of Hals Creek, 2.5 miles west of its confluence with the Frog River.
CLAIMS: LINDA 1 to 17; WEST 3 to 6; 47 JENNIFER.
ACCESS: By helicopter from Watson Lake, Y.T., 150 miles south-southeast.
OWNERS: Conwest Exploration Company Limited and Quebec Cartier Mining Company.
OPERATOR: CONWEST EXPLORATION COMPANY LIMITED, 1001, 85 Richmond Street West, Toronto 1, Ont.
METALS: Lead, zinc, silver.
DESCRIPTION: Narrow lenses of pyrite, galena, and sphalerite, and broad zones of disseminated pyrite occur in greenschist facies metasedimentary rocks (micaceous and calcareous metaquartzites, interstratified with pelitic schists) subjacent to the Cassiar batholith.

WORK DONE: Induced polarization and resistivity surveys were done in 1970 covering the Linda and West claims. Surface geological mapping, 1 inch equals 100 feet covering approximately eight full claims; surface diamond drilling, eight holes totalling 3,049 feet on Linda 11 and 13 and West 3, 5, and 6.

REFERENCES: Assessment Reports 467, 2995.

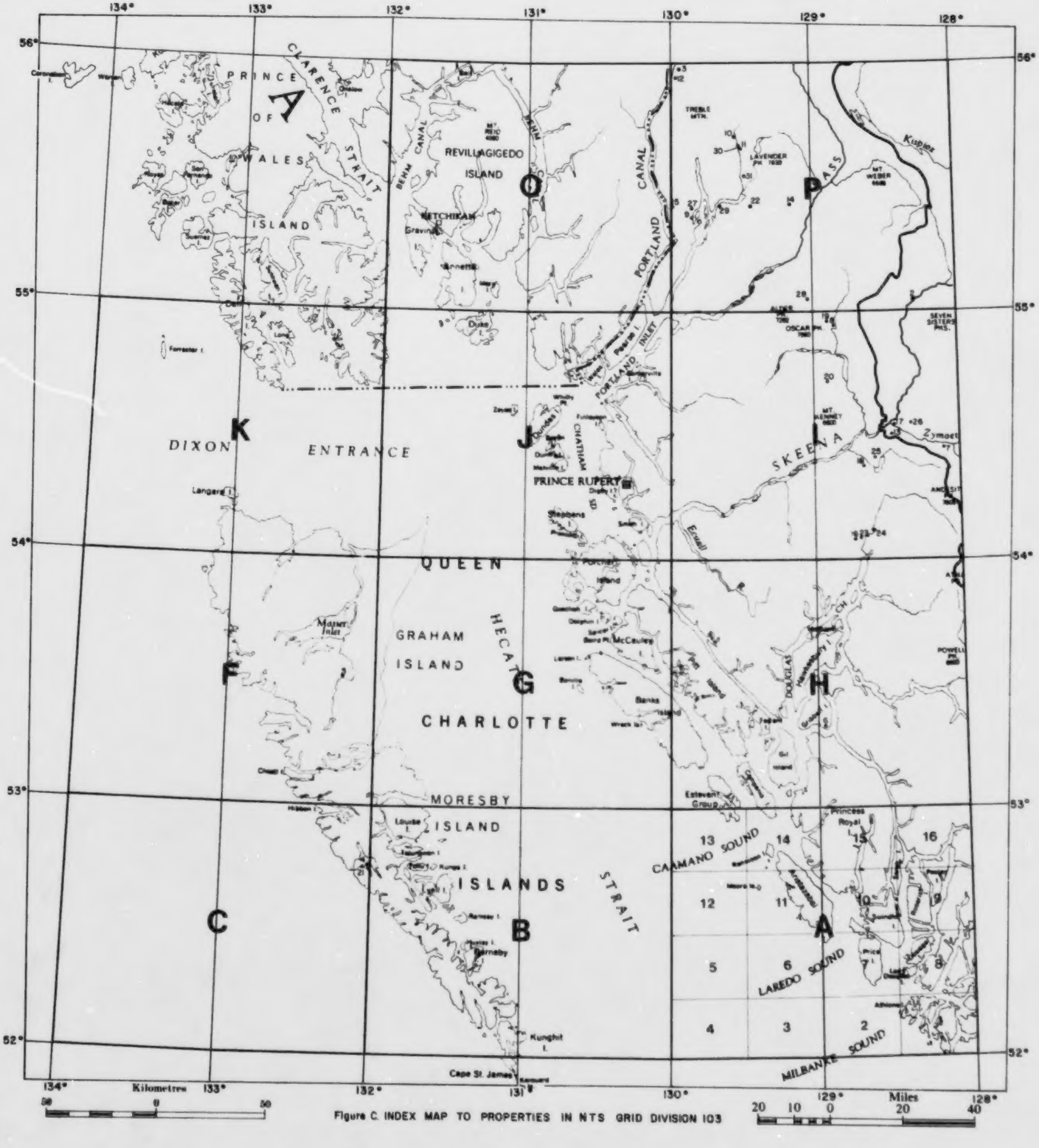

134°
133°
132°
131°
130°
129°
128°
56°
55°
54°
53°
52°
A
B
C
F
G
H
I
J
K
O
P
PRINCE OF WALES ISLAND
CLARENCE STRAIT
REVILLAGIGEDO ISLAND
BEHM CANAL
KETCHIKAN
Gravina
Annette I.
Duke
PORTLAND CANAL
PORTLAND INLET
Pearse I.
TREBLE MTN.
LAVENDER PK.
MT. WEBER
PASS
Kispiox
ALICE
OSCAR PK.
SEVEN SISTERS PKS.
MT. KENNEY
Zymoet
SKEENA
Forrester I.
DIXON ENTRANCE
Langara I.
Dundas I.
CHATHAM
PRINCE RUPERT
Digby I.
Stephens I.
Smith I.
Porcher Island
Ecstall R.
QUEEN
HECATE
GRAHAM ISLAND
Masset Inlet
McCauley
Banks Island
DOUGLAS CH.
CHARLOTTE
MORESBY ISLAND
Louise I.
ISLANDS
STRAIT
Burnaby
Estevan Group
CAAMANO SOUND
Princess Royal I.
LAREDO SOUND
MILBANKE SOUND
Kunghit I.
Cape St. James
POWELL PK.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
22
25
26
27
28
29
30
31
Kilometres
50
0
50
Miles
20
10
0
20
40

Figure C. INDEX MAP TO PROPERTIES IN NTS GRID DIVISION 103

KEY TO PROPERTIES ON INDEX MAP, FIGURE C.

1. NFG, page 110.
2. MOGUL, page 119.
3. LITTLE JOE, GYPSY, page 126.
4. GARNET, page 110.
5. BABE, page 111.
6. OX, KEN, page 112.
7. ZYM, page 113.
8. BIG JOE, page 116.
9. RED WING, page 120.
10. RED POINT, COPPER CLIFF, DAN PATCH, DANA, SURPRISE, page 125.
11. HOMEGUARD, page 124.
12. GOLD CLIFF, page 126.
13. TERRACE CALCIUM PRODUCTS LTD. QUARRY, page 468.
14. ROUNDY CREEK, page 122.
15. MAPLE BAY COPPER MINE, page 121.
16. BOWBYES, page 112.
17. CROESUS (GEM), page 114.
18. LADY LUCK, page 113.
19. HOPE SILVER, page 118.
20. QUARTZ SILVER, page 116.
21. TASU MINE, page 110.
22. BRITISH COLUMBIA MOLYBDENUM MINE, page 121.
23. ANDERSON CREEK QUARRY, page 458.
24. MINETTE BAY QUARRY, page 458.
25. HAL, page 113.
26. KDL (H), page 114.
27. CD, CU, page 121.
28. LUCKY, page 119.
29. HAYWIRE, page 120.
30. E and D (WILDCAT), page 124.
31. TOTAL, page 123.

WEST CENTRAL BRITISH COLUMBIA
(NTS Division 103 Figure C)

MORESBY ISLAND 103B, C

NFG (No. 1, Fig. C)

LOCATION: Lat. 52° 25′ Long. 131° 17′ (103B/6W)
SKEENA M.D. On Burnaby Island, approximately 1.5 miles from the northeast corner and about 2 miles south of Scudder Point.
CLAIMS: NFG 1 to 20.
ACCESS: By boat.
OWNER: EXCLUSIVE RESOURCES LTD., 189 East 45th Avenue, Vancouver 15.
METAL: Iron.
WORK DONE: An aeromagnetic survey was done during 1970 on NFG 1 to 4. The claims were surveyed and 60 feet of trenching was done on the NFG 2 and 4 in 1971.
REFERENCE: Assessment Report 2879.

GARNET (No. 4, Fig. C)

LOCATION: Lat. 52° 46.0′ Long. 132° 01.2′ (103C/16E)
SKEENA M.D. Between 100 and 1,200 feet elevation on the tip of the peninsula lying between Fairfax and Botany Inlets, Moresby Island.
CLAIMS: GARNET 1 to 4, 5 Fraction, 6 to 12, 14 to 58; RUBY 1 to 4.
ACCESS: By air, 35 miles south of Sandspit.
OWNER: Moresby Mines Limited.
OPERATOR: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary 1, Alta.
METALS: Copper, molybdenum (minor zinc, iron).
DESCRIPTION: Chalcopyrite and molybdenite occur in granodiorite with magnetite, chalcopyrite, and sphalerite-bearing skarn and vein deposits in and adjacent to Kunga limestone and Karmutsen greenstone.
WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 200 feet; geochemical soil survey, 20 line-miles covering Ruby 1 and 2; geochemical survey, 900 samples covering Garnet 8-12, 14-17, 17, 18, 30; induced polarization survey, 20 line-miles covering same claims as the geochemical surveys.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 70; Assessment Reports 1257, 3487.

TASU MINE (No. 21, Fig. C)

By B. M. Dudas

LOCATION: Lat. 52° 45.5′ Long. 132° 03′ (103C/16E)
SKEENA M.D. On the south side of Tasu Sound, Moresby Island, Queen Charlotte Islands.
CLAIMS: Twenty-one Crown-granted and 83 recorded mineral claims.

ACCESS: By floatplane or powerboat from Sandspit. Local freight is handled by coastal freighters from Vancouver and Queen Charlotte City.

OWNER: WESFROB MINES LIMITED, 504, 1112 West Pender Street, Vancouver 1; mine office, Tasu.

METALS: Iron, copper (production shown in Table 1).

WORK DONE:

Mining is done by open-pit method, on a five-day schedule at a rate of 8,000 tons per day of ore and 8,000 tons per day of waste. Iron and copper concentrates are produced by flotation and magnetic separation.

Preproduction stripping of overburden was completed for the 2 zone and mining was commenced at the 990-foot elevation. A slope stability study was undertaken, and on the recommendation of the consulting engineer a final pit-wall design with a 65-degree slope was adopted for the 2 zone pit. Most of the production for the year came from the 1 zone pit.

During the year one new Caterpillar 988 loader, two new Caterpillar D-8 tractors, and eight new Caterpillar 969-B off-highway trucks were leased. These units replaced the 71-B shovel, one D-7 tractor, three D-8 tractors, and ten Haulpak trucks which were removed from the property. The Adams grader was replaced with a Caterpillar grader. The powder magazines near the 2 zone area were relocated farther away from the mining activity.

The 4,160-volt electric shovel power cable was rerouted through a borehole to a new portable substation installed at the 1,125 elevation between 2 zone and 3 zone pits. Three 100-kva., 4,160-600 volt transformers were taken out of service.

The 10 by 12-foot Dela-Blujay exploration adit was terminated at 2,596 feet in good ground. All equipment of the contractors installed during 1970 for the purpose of driving this adit was dismantled and removed. Exploration drilling of 'A' size core on the Dela-Blujay zone was carried out on surface and from underground stations. The total footage diamond drilled from surface was 11,678 feet and from underground stations was 14,079 feet.

The company maintains a townsite for married personnel and modern multiple residences for single-status employees. A medical doctor and full-time nurse reside in the townsite.

The company surface rescue team participated at the first British Columbia Open-Pit Rescue Competition held at Brenda mine on October 2nd.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 101; Bull. 54, pp. 183-189.

GRAHAM ISLAND 103F

BABE (No. 5, Fig. C)

LOCATION: Lat. 53° 31.5' Long. 132° 13.0' (103F/9E)
SKEENA M.D. At approximately 500 feet elevation on the north side of Yakoun River, 11 miles south of Port Clements, Graham Island.

CLAIMS: BABE, RIC, totalling approximately 45.

ACCESS: By logging road from Port Clements, 20 miles.

OWNERS: Efrem Specogna and Kennco Explorations, (Western) Limited.

OPERATOR: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

METALS: Gold, mercury.

DESCRIPTION: Altered rhyolite breccia at the base of the Early Tertiary Masset Formation contains minor pyrite.

WORK DONE: Reconnaissance geological mapping; geochemical silt, soil, and rock survey, approximately 24 line-miles covering all claims; surface diamond drilling, two holes totalling 181 feet on Babe 6 and 8.

REFERENCES: Assessment Reports 2890, 3517.

DOUGLAS CHANNEL 103H

OX, KEN (No. 6, Fig. C)

LOCATION: Lat. 53° 19'-20.6' Long. 128° 55.5' - 129° 00' (103H/7W)
SKEENA M.D. Fifty-five miles south of Kitimat, on Gribbell Island between Fellbrook and Pilot Points.

CLAIMS: OX 1 to 22, KEN 1 to 12.

ACCESS: By boat or floatplane, 90 miles southeast from Prince Rupert.

OWNER: BALFOUR MINING LTD., 600, 890 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: Photogeological and geochemical surveys and 79 cubic yards of trenching were done.

REFERENCE: Assessment Report 3347.

TERRACE 103I

BOWBYES (No. 16, Fig. C)

LOCATION: Lat. 54° 03.9'-06' Long. 128° 43.8'-45' (103I/2E)
SKEENA M.D. At approximately 2,500 feet elevation on east slope of Claque Mountain, 4 miles northwest of Kitimat.

CLAIMS: BOWBYES 1 to 16, JOAN 1 and 2.

ACCESS: By logging road from Kitimat Service Center, 4 miles.

OWNER: BOWBYES MINES LTD., 1767 Ingledew Street, Prince George.

METALS: Copper, iron.

DESCRIPTION: Copper and iron minerals occur in chlorite schists, skarn, and siliceous volcanic rocks.

WORK DONE: Road construction, 1.5 miles between Joan 2 and Bowbyes 3; trenching, 9,216 cubic feet on Joan 2 and Bowbyes 3; stripping, 7,500 square feet on Bowbyes 3; percussion drilling, 253 holes totalling 757 feet on Bowbyes 3 and Joan 2.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 98.

HAL (No. 25, Fig. C)

LOCATION: Lat. 54° 24′-25.4′ Long. 128° 35′-39′ (103I/7E)
SKEENA M.D. On Lakelse Lake, 8 miles south of Terrace and 1 mile west of Muller Bay.
CLAIMS: HAL 1 to 20, KATY 1 to 20, ROSE 1 to 10.
ACCESS: From Terrace by road, 8 miles.
OPERATORS: LAKELSE EXPLORATION COMPANY LTD. and KENNETH MAYNER, 5317 Heppell Road, Terrace.
METALS: Copper, molybdenum, zinc, iron.
WORK DONE: Photogeology, field geology, line-cutting, drilling, and blasting between 1966 and 1971.

LADY LUCK (No. 18, Fig. C)

By B. M. Dudas

LOCATION: Lat. 54° 23′ Long. 128° 40′ (103I/7E)
SKEENA M.D. On the east slope of Mount Johnstone about 7 air miles south of Terrace, at 800 feet elevation.
CLAIMS: LADY LUCK 1 to 40, 68, MAYNERS FORTUNE, MAYNERS FORTUNE 2 to 8, LUCKY FORTUNE 1 to 8, 18 to 20, LUCKY FORTUNE 17 Fraction, KENAD 1 to 34, GABE 1 to 36, totalling 138.
ACCESS: By road, 22 miles from Terrace.
OWNER: Cree Lake Mining Ltd.
OPERATOR: COASTAL MINING COMPANY (subsidiary of The Hanna Mining Company), 506, 1200 West Pender Street, Vancouver 1.
METALS: Copper, molybdenum, zinc, lead, iron, limestone.
DESCRIPTION: Best mineralization occurs in skarn adjacent to a diorite intrusion.
WORK DONE: The property was optioned to Coastal Mining Company. Line-cutting, soil sampling, magnetometer surveying, and geological mapping at 1 inch equals 400 feet were carried out.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 97, 98.

ZYM (No. 7, Fig. C)

LOCATION: Lat. 54° 27′ Long. 128° 06.5′ (103I/8E)
OMINECA M.D. At approximately 1,600 feet elevation on south bank of Zymoetz River, 21 miles east of Terrace.
CLAIMS: ZYMOETZ, ZYMOETZ Fraction, ATKOM, NATIVE, KELLY, SAINT, PAN, TAN, totalling 120.
ACCESS: By road from Terrace, 21 miles.
OWNER: Native Mines Limited.
OPERATOR: PECHINEY DEVELOPMENT LIMITED, 701, 744 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Chalcopyrite and bornite occur as fracture fillings in rhyolite tuffs and granodiorite. An induced polarization anomaly north of the Lower showing was further tested by drilling in 1971. The first hole, drilled to a depth of 430 feet, encountered 240 feet of overburden. The

remainder of the hole was in andesite and dacite tuff-breccias. No sulphides were seen. The second hole was abandoned after drilling through 350 feet of overburden.

WORK DONE: Surface diamond drilling, two holes totalling 788 feet on Zymoetz 4.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 189-193.

KDL (H) (No. 26, Fig. C)

LOCATION: Lat. 54° 33′ Long. 128° 19′ (103I/9W)
OMINECA M.D. Between 1,500 and 2,500 feet elevation on Kendall Creek, 12 miles east of Terrace.

CLAIMS: KDL, totalling 20 (a relocation of the central part of the H claim group).

ACCESS: Twelve miles east from Terrace by helicopter or by logging roads from Kleanza Creek.

OWNER: John Carlson.

OPERATOR: THE HANNA MINING COMPANY, 508, 1200 West Pender Street, Vancouver 1 (optioned late in 1971).

METALS: Copper, minor molybdenum, silver, lead, zinc.

DESCRIPTION: A heliport and camp were established at an elevation of 2,150 feet on a bench above the deeply incised canyons of Kendall Creek and one of its tributaries. Iron staining is widespread due to the occurrence of pyrite as disseminations and fracture fillings. Blasted pits east of the heliport expose brecciated light green andesite in which chalcopyrite and pyrite occur as breccia fillings. Sphalerite was also noted in veinlets and fractures. Nearby, the volcanic rocks are intruded by a 50-foot-wide, northwest striking dyke of grey feldspar-biotite porphyry which contains finely disseminated pyrite.

WORK DONE: Soil sampling, prospecting, and geological mapping.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 194.

CROESUS (GEM) (No. 17, Fig. C)

By N. C. Carter

LOCATION: Lat. 54° 32.8′ Long. 128° 25.6′ (103I/9W)
OMINECA M.D. On the west slope of Kleanza Mountain at an elevation of 2,200 feet.

CLAIMS: CROESUS, totalling 66.

ACCESS: By road from Terrace, 6 miles to the west. The Gem surface and underground workings are accessible by 1.5 miles of road suitable for four-wheel-drive vehicle from the Croesus trenches.

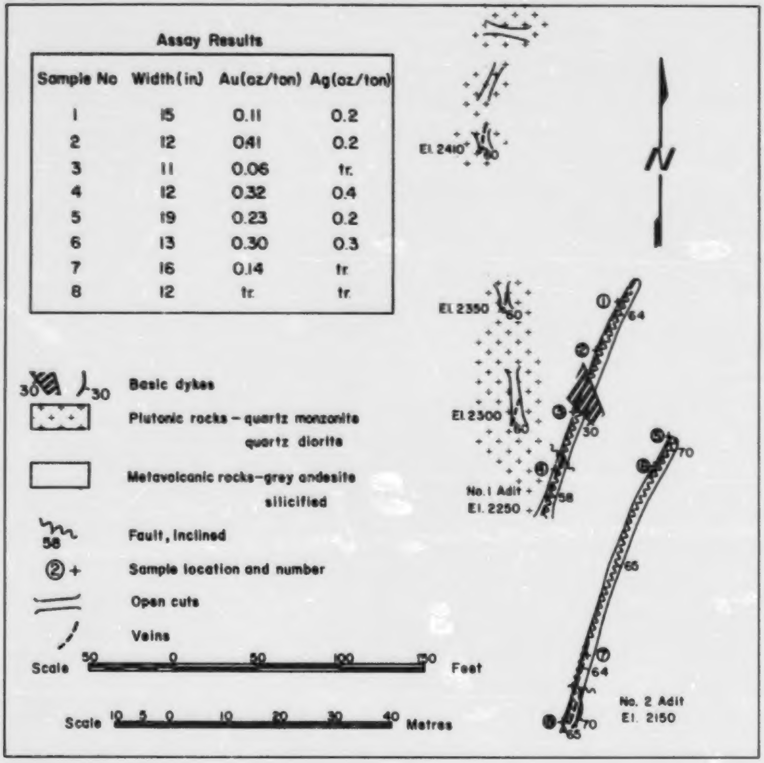
OWNER: KLEANZA MINES LTD., Box 580, Terrace.

METALS: Copper, silver, gold, lead, zinc.

DESCRIPTION:

The Gem surface and underground workings are situated about a mile northeast of the Croesus copper-molybdenum zone. (A geological description of the Croesus zone is given in the Annual Report of the Minister of Mines and Petroleum Resources for 1967 on pages 80 to 82.) Original work on the Gem and other vein deposits on Kleanza Mountain was done prior to 1925. Recent work has included road construction, bulldozer trenching, and the re-opening of the underground workings.

The principal mineral showing is a quartz-pyrite vein which contains some high gold concentrations. The vein follows a north-northeast, easterly dipping fault zone in the contact area between grey, silicified metavolcanic rocks and quartz diorites, quartz monzonites, and hybrid rocks of the Coast Plutonic Complex. The vein is from 6 to 19 inches wide and has been traced for several hundred feet in two adits and several open cuts (Fig. 20). A third adit, situated 250 feet south of number 2 adit, is caved at the portal.



Assay Results

Sample No	Width(in)	Au(oz/ton)	Ag(oz/ton)
1	15	0.11	0.2
2	12	0.41	0.2
3	11	0.06	tr.
4	12	0.32	0.4
5	19	0.23	0.2
6	13	0.30	0.3
7	16	0.14	tr.
8	12	tr.	tr.

30 30 Basic dykes
Plutonic rocks – quartz monzonite quartz diorite
Metavolcanic rocks–grey andesite silicified
58 Fault, Inclined
② + Sample location and number
Open cuts
Veins
Scale 50 0 50 100 150 Feet
Scale 10 5 0 10 20 30 40 Metres
N
El. 2410
60
El. 2350
60
El. 2300
60
①
64
②
③
30
④
No. 1 Adit
El. 2250
58
⑤
70
⑥
65
⑦
64
⑧
70
65
No. 2 Adit
El. 2150

Figure 20. Geology of underground and surface workings of the Croesus (Gem) property, Kleanza Mountain.

The best mineralization seen was in the two adits where medium-grained pyrite and very minor chalcopyrite occur as lenses and stringers in the quartz vein and in 1-inch-wide stringers locally adjacent to, and paralleling, the vein. Assay results of eight samples taken across the vein in the two adits are shown on Figure 20.

Post-mineral tectonic and intrusive activity is represented by later movement on the northeast fault zone along which the quartz vein was emplaced, slight offsetting of the northeast fault and vein by a northwest fault in the upper adit, and the intrusion of hornblende lamprophyre dykes which strike northeast and northwest and cut both the northeast fault and the vein.

WORK DONE: A bulk sample for mill tests was taken from the Gem workings. Elsewhere on the claim group, a test percussion hole was drilled on the Croesus 44 claim and some stripping was done on the Croesus 43 and 44 claims.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1967, pp. 80-82; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 194.

QUARTZ SILVER (No. 20, Fig. C)

LOCATION: Lat. 54° 43' Long. 128° 54' (103I/10W)
SKEENA M.D. At 1,000 feet elevation south of Nelson River, 5 miles west of the south end of Kitsumkalum Lake.
CLAIMS: QUARTZ SILVER 1 to 6.
ACCESS: By road from Terrace on the Nass River road, 20 miles.
OWNERS: JOHN APOLCZER and R. H. BATES, Terrace.
METALS: Silver, lead, zinc, copper, tungsten.
WORK DONE: Prospecting and limited amount of trenching.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 97.

BIG JOE (No. 8, Fig. C)

By N. C. Carter

LOCATION: Lat. 54° 57.5' Long. 128° 50.5' (103I/15W)
SKEENA M.D. At approximately 1,300 feet elevation near the confluence of Cedar River and Sterling Creek, 30 miles north of Terrace.
CLAIMS: BIG JOE 1 to 106.
ACCESS: By logging road from Terrace, 37 miles.
OPERATOR: AMERICAN SMELTING AND REFINING COMPANY, 504, 535 Thurlow Street, Vancouver 5.
METAL: Molybdenum.
DESCRIPTION:

Molybdenite mineralization on the Big Joe claims is associated with a small granodiorite stock which intrudes sedimentary rocks just east of the Cedar River (Fig. 21). Occurrences of molybdenite mineralization were noted during the construction of a logging road paralleling Cedar River in the fall of 1970. The area was logged in 1971 and bedrock is well exposed along the numerous tributary logging roads.

The granitic stock is elongate in an east-northeast direction, and measures approximately 2,600 by 1,000 feet. Forceful emplacement of the stock is indicated along the north contact where the regional northeast strike of the sedimentary rocks has been arched to conform to the trend of the contact.

The sedimentary rocks include thin-bedded, grey to black, argillaceous siltstones and greywackes, which have been thermally metamorphosed to chocolate-brown biotite hornfels in an aureole which extends outward from the stock contact a distance of 150 to 200 feet. Immediately adjacent to the contact, fine-grained clots of radiating fibrous

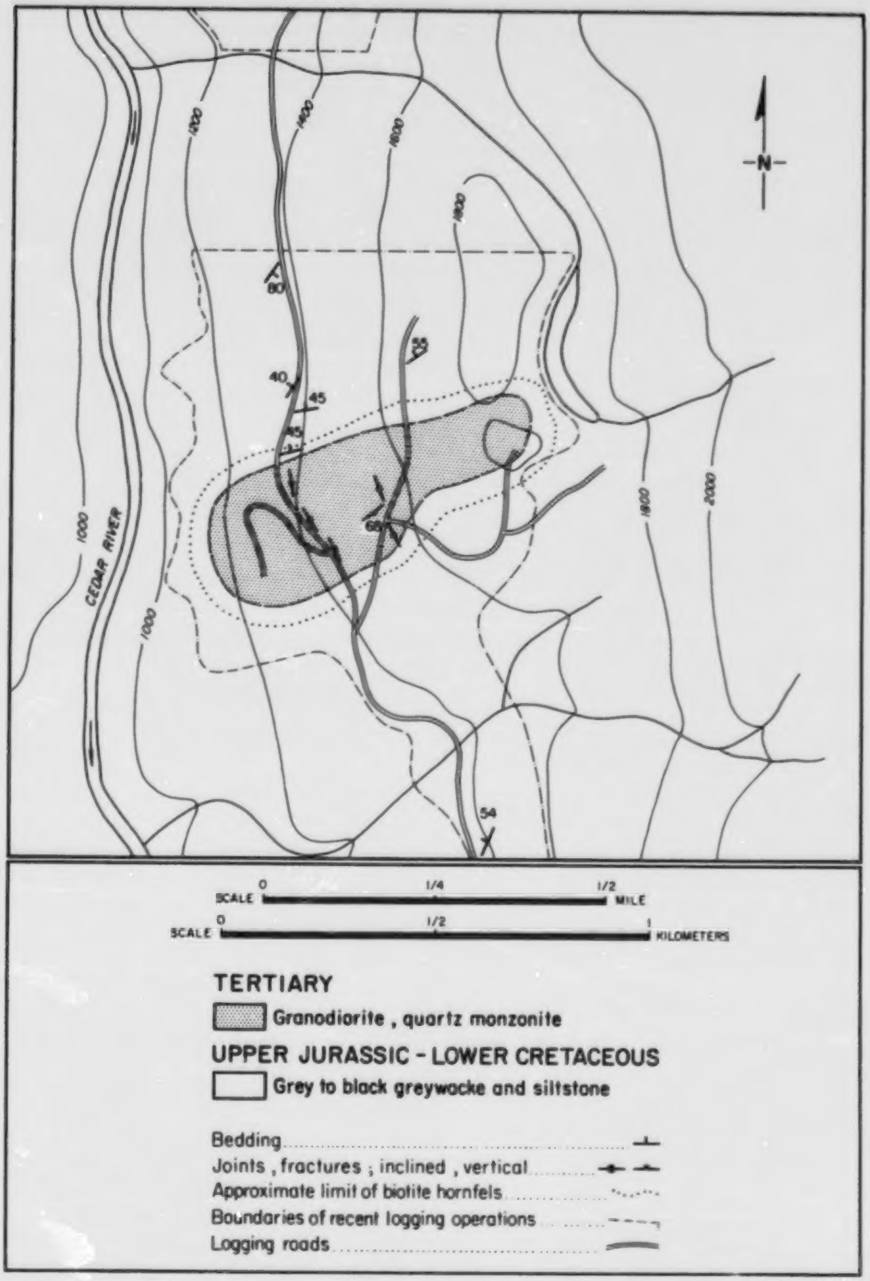

N
CEDAR RIVER
1000
1000
1200
1400
1600
1800
1800
2000
80
40
45
45
55
68
54
SCALE 0 1/4 1/2 MILE
SCALE 0 1/2 1 KILOMETERS
TERTIARY
Granodiorite , quartz monzonite
UPPER JURASSIC - LOWER CRETACEOUS
Grey to black greywacke and siltstone
Bedding
Joints , fractures ; inclined , vertical
Approximate limit of biotite hornfels
Boundaries of recent logging operations
Logging roads

Figure 21. Geology of the Big Joe claims, Cedar River.

amphibole (cummingtonite ?) were noted intimately associated with stubby grains of biotite in a quartz-rich matrix. A thin band of light green quartz-epidote-garnet skarn was seen along the south contact.

The stock consists mainly of granodiorite, with some gradations to quartz monzonite. Typically, the rock is medium grained, equigranular, light grey in colour and consists essentially of plagioclase (oligoclase-andesine), quartz, and K-feldspar with interstitial biotite and hornblende. Accessory minerals include apatite, sphene, and pyrite. Chloritic alteration of biotite is common and minor sericitic alteration of plagioclase was noted. The intrusive rock varies in grain size and mafic content. One-inch-wide stringers of fine-grained pink aplite are common.

The rocks of the stock are typical of the granitic rocks of the eastern flank of the Coast Plutonic Complex, the contact of which is about 6 miles west of the Big Joe claims. K-Ar age determinations on plutonic rocks of this area have yielded ages between 45 and 50 million years.

Molybdenite mineralization on the claims is apparently confined to the granitic rocks in which it occurs as selvages along widely spaced one-half to 1-inch milky white quartz veins, as disseminations in aplite stringers, and as coatings on fracture planes with sericite. The best mineralization seen in surface exposures was along the main logging road near the south contact of the stock.

WORK DONE: Surface geological mapping, 1 inch equals 250 feet covering Big Joe 1, 4, 6, 13 to 17; trenching, 500 feet on Big Joe 1; percussion drilling, 42 holes totalling 7,300 feet on Big Joe 1 and 13 to 15.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 51; *B.C. Dept. of Mines & Pet. Res.*, Preliminary Map No. 8, Geological Compilation Map of the Stewart, Anyox, Alice Arm, and Terrace Areas; Assessment Report 857.

HOPE SILVER **(No. 19, Fig. C)**

LOCATION: Lat. 54° 58' Long. 128° 53' (103I/15W)
SKEENA M.D. At approximately 1,150 feet elevation southeast of Sand Lake, near Belway Creek, 35 miles north of Terrace.

CLAIMS: BB, BOX, BOB, GRISSLY, BEN, AG, HOPE, totalling 15.

ACCESS: By road, 40 miles from Terrace via main Nass River road, thence by tote road to south end of Sand Lake.

OWNER: KLEANZA MINES LTD., Box 580, Terrace.

METALS: Gold, silver, lead, zinc.

DESCRIPTION: The principal showing is a quartz-breccia-sulphide vein, up to 15 feet wide, which occurs in a steeply dipping southeast striking shear zone in argillaceous siltstones.

WORK DONE: The old portal and some of the old trenches on Hope claims were cleared of debris. A fresh face was blasted and some overburden was cleared on the boundary of the Hope claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 95.

MOGUL (No. 2, Fig. C)

LOCATION: Lat. 55° 02′ Long. 128° 16′ (103P/1W)
OMINECA M.D. Approximately 2 miles northeast of Cedarvale on the Skeena River.
CLAIMS: MOGUL 1 and 2.
ACCESS: Via Highway 16.
OWNER: C.L.M. GIGGEY, Box 396, Terrace.
DESCRIPTION: Minor molybdenite occurs in fractures in granitic rocks of the Coast Plutonic Complex.
WORK DONE: Line-cutting.
REFERENCE: Assessment Report 2873.

LUCKY (No. 28, Fig. C)

By N. C. Carter

LOCATION: Lat. 55° 03′ Long. 129° 02′ (103P/3W)
SKEENA M.D. One mile west of Lava Lake, on a south flowing tributary of Alder Creek, at an elevation of 1,700 feet.
CLAIMS: LUCKY, totalling 26.
ACCESS: By helicopter from Terrace airport, 45 miles to the south, or by the Nass River road to Lava Lake and thence by boat and trail.
OWNERS: BILL McKAY, Terrace and CLIFF MOLLISON, Kitimat.
METALS: Molybdenum, copper.
DESCRIPTION:

Molybdenum-copper mineralization is associated with dykes and sills of granodiorite porphyry which intrude siltstones and shales on the steep slope north of Alder Creek. The area of the principal showings is marked by a prominent gossan visible from the Nass River road at the south end of Lava Lake. The contact between granitic rocks of the Coast Plutonic Complex and Bowser-type sedimentary rocks is located half a mile south of the showings, where it parallels the south side of Alder Creek.

The main showings are exposed in several open cuts in the steep canyon of a southwest flowing tributary of Alder Creek, between elevations of 1,600 and 1,700 feet. A northwest striking dyke-like body of granodiorite porphyry intrudes dark grey siltstones which have been largely converted to biotite hornfels. The intrusion is typical of the Alice Arm-Nass River type, being a crowded porphyry with 1 to 2-millimetre euhedral phenocrysts of zoned plagioclase (andesine) constituting up to 40 per cent of the rock by volume. The phenocrysts are set in a fine-grained matrix of quartz and minor K-feldspar. Original hornblende and biotite are almost completely altered to chlorite, and pyrite is disseminated throughout the rock. Intensely brecciated varieties of the intrusive were noted in which mafic minerals are bleached, rendering the rock a uniform grey colour. Abundant quartz has flooded the matrix and stringers of granulated rock envelop non-brecciated fragments of porphyry.

Molybdenite with some chalcopyrite and rare bornite occurs in coarse-grained drusy quartz veins, on hairline fractures with quartz, and in gouge zones representative of post-mineral faulting. The best mineralization is within the intrusive rocks near their contact with hornfelsed sedimentary rocks.

Pyrite is widely disseminated both in the intrusive rocks and hornfels, giving rise to the gossan zone which extends eastward along the steep slope for a distance of half a mile.

WORK DONE: Trenching in the area of the principal showings and soil sampling.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* Prelim. Map No. 8, Geological Compilation Map of the Stewart, Anyox, Alice Arm, and Terrace Areas.

HAYWIRE (No. 29, Fig. C)

By N. C. Carter

LOCATION: Lat. 55° 26' Long. 129° 41' (103P/5E)
SKEENA M.D. One and one-half miles north of Davies Point at the entrance to Alice Arm.

CLAIMS: HAYWIRE 1 to 4.

ACCESS: By boat or helicopter from Alice Arm.

OWNERS: D. Collison and A. D. York.

OPERATOR: JOANNE B.C. SYNDICATE (A. Cockshutt and T. McQuillan, principals), 612, 85 Richmond Street West, Toronto.

METALS: Nickel, copper.

DESCRIPTION:

Nickel and copper mineralization is associated with an olivine gabbro sill which is exposed in an open cut 500 feet from the beach. Mineralization occurs in two forms: as a 1-foot-wide lens of massive pyrrhotite containing stringers and blebs of chalcopyrite, and as disseminations of pyrrhotite and chalcopyrite in olivine gabbro.

Two short holes drilled across the east-west strike of the gabbro sill intersected only 10 feet of gabbro containing minor mineralization.

WORK DONE: Two Winkie drill holes in the mineralized zone.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, pp. 67, 68.

RED WING (No. 9, Fig. C)

LOCATION: Lat. 55° 21.3'-24.4' Long. 129° 49.3'-54.2' (103P/5W)
SKEENA M.D. From sea level to 3,000 feet elevation at Granby Bay.

CLAIMS: RED JACKET, RED WING, RED Fraction (Lots 1991-1993) Crown grants; CM, PAUL, DOUG, RON, NORM, etc., located claims and fractions.

ACCESS: By boat or aircraft from Alice Arm, 10 miles.

OWNER: Interplex Spa Industries Ltd. (formerly Interplex Mining & Industrial Ltd.).

OPERATOR: HOGAN MINES LTD., 811, 850 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs as massive lenses along or near the contact between andesite pillow volcanic rocks and overlying sedimentary rocks.

WORK DONE: Airborne magnetometer and electromagnetic surveys covering CM, Red Jacket, and Red Wing claims.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1965, pp. 57-61; 1966, pp. 41-43; Assessment Report 3348.

CD, CU (No. 27, Fig. C)

LOCATION: Lat. 55° 25' Long. 129° 51' (103P/5W)
SKEENA M.D. Eighty air miles north-northeast of Prince Rupert at Anyox, between Bonanza Creek and Carney Lake.

CLAIMS: CD, CU, SUNSHINE, totalling 100 claims and leases.

ACCESS: By boat or floatplane from Prince Rupert, 90 miles.

OWNER: ARCADIA EXPLORATIONS LTD., 1119, 409 Granville Street, Vancouver 1.

METALS: Copper, iron.

WORK DONE: Geochemical rock survey, between 30 and 40 samples covering Sunshine 1-10 and CD claims; induced polarization and reconnaissance magnetometer survey, 4 to 5 line-miles covering same claims; trenching, several pits on Knob Hill and Hanna showing areas.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 81; Assessment Report 3534.

MAPLE BAY COPPER MINE (No. 15, Fig. C)

LOCATION: Lat. 55° 25' Long. 130° 00' (103P/5W)
SKEENA M.D. At approximately 2,000 feet elevation on east side of Portland Canal, 35 miles south of Stewart.

CLAIMS: Twenty-two Crown grants, 44 located.

ACCESS: By boat or floatplane south from Stewart, 35 miles.

OWNER: Maple Bay Copper Mines Limited.

OPERATOR: GREAT SLAVE MINES LTD., 200, 890 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: Road construction from Maple Bay to the lower portal of the Outsider mine; underground work, 300 feet on Regina (Lot 564).

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 77-81.

BRITISH COLUMBIA MOLYBDENUM MINE (No. 22, Fig. C)

By B. M. Dudas

LOCATION: Lat. 55° 25' Long. 129° 25.5' (103P/6W)
SKEENA M.D. The property is on Patsy Creek, the east fork of Lime Creek, and is 5 miles southeast of the head of Alice Arm Inlet, at elevation 2,000 feet.

CLAIMS: Ninety-nine full and fractional claims, including the key claims PATRICIA 1 to 5.

ACCESS: From Prince Rupert by boat or floatplane. Local freight is handled by coastal shipping and off-loading to a company barge at Alice Arm. All other freight supplies and concentrates are shipped by barge.

OWNER: BRITISH COLUMBIA MOLYBDENUM LIMITED, 810, 402 West Pender Street, Vancouver 3; mine office, Kitsault.

METAL: Molybdenum (production shown in Table 1).

WORK DONE:

Mining is by open-pit method. Molybdenite concentrate is produced by flotation. The operating schedule of three shifts for seven days was reduced to two shifts for five days for the pit and three shifts for five days for the concentrator. Two new 75-ton Haulpaks were added to the existing fleet of equipment to improve efficiency. Rock mechanics and slope stability studies were carried out by company consultants to assist in the optimum pit-wall design.

The company maintains a town at Kitsault and a four-room elementary school. A medical doctor and a full-time nurse reside on the property. Mine-rescue and first-aid training is encouraged and at year end there were 28 surface mine-rescue certificate holders, 31 St. John Ambulance certificate holders, and 9 industrial first-aid certificate holders on the property.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1964, pp. 30-36; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 94, 95.

ROUNDY CREEK (No. 14, Fig. C)

By N. C. Carter

LOCATION: Lat. 55° 25' Long. 129° 39' (103P/6W)
SKEENA M.D. At 1,000 feet elevation south of Alice Arm, on Roundy Creek, 1.5 miles from tide water.

CLAIMS: ROUNDY, ROUNDY 1 to 3, ROUNDY Fraction, LEE 1, 2, 23 to 54, CREEK Fraction, CANYON Fraction, BILLY 6, RAIN 1 to 4, RAIN Fraction, AT Fraction, DM 1 and 2 Fractions, DM 3, CJ 1 to 7 Fractions, GEO 1 to 8, totalling 66.

ACCESS: By road from Kitsault, 2.5 miles west.

OWNER: Sileurian Chieftain Mining Company Limited.

OPERATOR: PECHINEY DEVELOPMENT LIMITED, 701, 744 West Hastings Street, Vancouver 1 (agreement terminated in mid-year).

METAL: Molybdenum.

DESCRIPTION:

The accompanying diagram, Figure 22, is a simplified plan of the surface geology of the Roundy Creek intrusion which also shows the locations of the underground and surface drill holes completed in 1971, while the property was under option to Pechiney Development Limited. A detailed description of the geology and style of mineralization is contained in Geology, Exploration, and Mining in British Columbia, 1970, pages 91 to 94.

The 1971 underground drilling programme was undertaken to further test the possible downward extension of molybdenite mineralization encountered in surface drill holes and further developed in the 1050 level adit, from which work the company had reported reserves of 1.5 million tons grading 0.347 per cent molybdenite. In 1970, two angle holes drilled in a northeast direction from the crosscuts in the 1050 adit indicated that the mineralized zone extended only 150 feet vertically below the level. On the 850 level, a number of drill holes drilled to the east and northeast showed that a lens of high-grade molybdenite mineralization, encountered in the short east crosscut near the end of the drift, did not extend laterally or below the level.

The 1971 underground programme was designed to test the possibilities of the downward extension of the mineralized zone on the 1050 level to the south and southwest (Fig. 22). Nine holes were drilled from two stations near the end of the 850 adit. Three holes were fanned upward, horizontally, and downward in each of two sections, a horizontal and an uphole were drilled in a third section, and one horizontal hole was drilled in a fourth

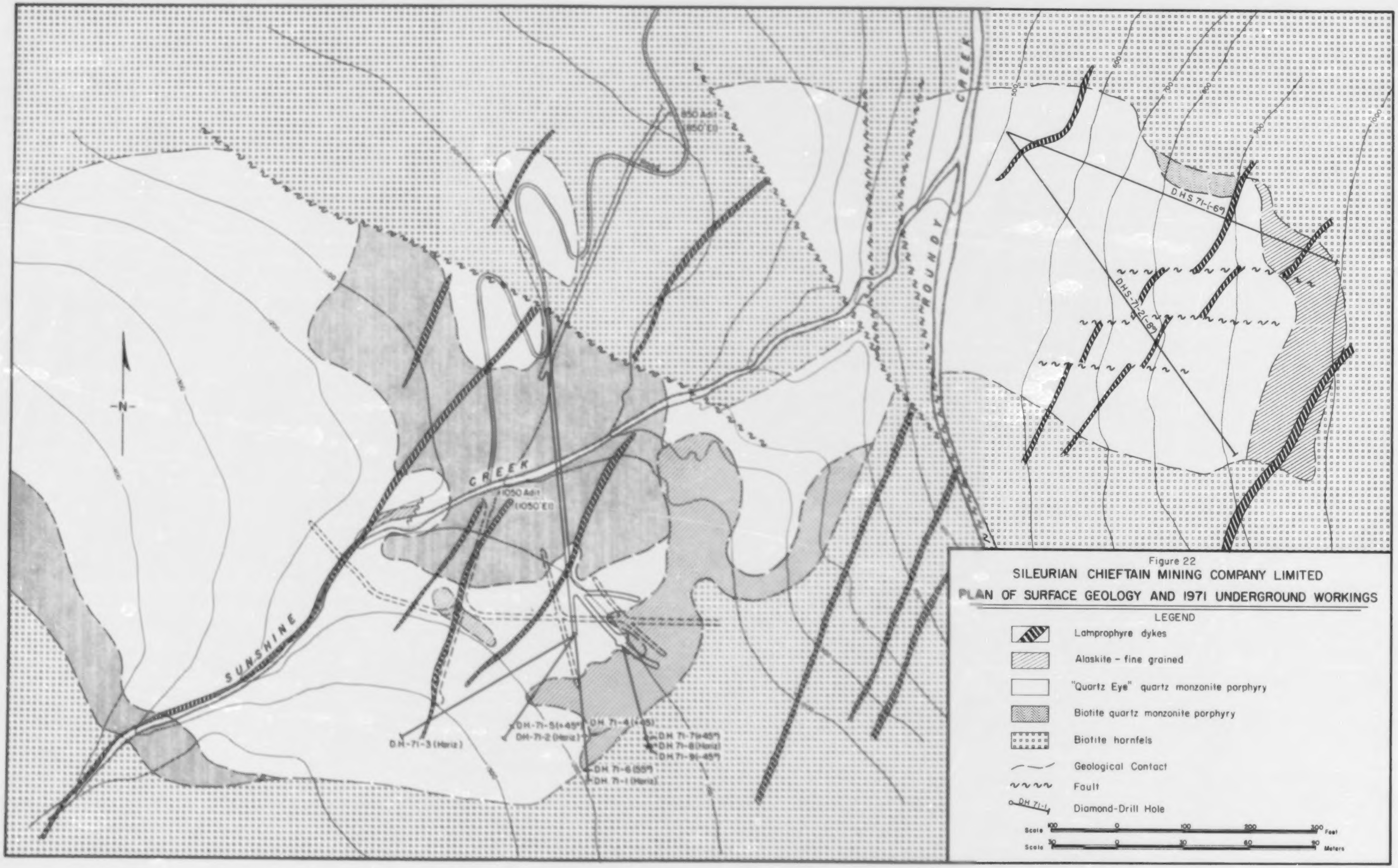

850 Adit
(850' El)
1050 Adit
(1050' El)
SUNSHINE CREEK
ROUNDY CREEK
N
DHS 71-1(-6°)
DHS-71-2(-8°)
500
600
700
800
900
1000
DH-71-3 (Horiz)
DH-71-5(+45°)
DH-71-2 (Horiz)
DH 71-4(+45)
DH 71-7(+45°)
DH 71-8(Horiz)
DH 71-9(-45°)
DH 71-6(55°)
DH 71-1 (Horiz)
LEGEND
Lamprophyre dykes
Alaskite - fine grained
"Quartz Eye" quartz monzonite porphyry
Biotite quartz monzonite porphyry
Biotite hornfels
Geological Contact
Fault
DH 71-1
Diamond-Drill Hole
Scale 100 0 100 200 300 Feet
Scale 30 0 30 60 90 Meters

Figure 22

SILEURIAN CHIEFTAIN MINING COMPANY LIMITED

PLAN OF SURFACE GEOLOGY AND 1971 UNDERGROUND WORKINGS

section. The results were largely negative, with the only ore-grade mineralization (100 feet of plus 0.20 per cent molybdenite) being intersected in drill hole 71-7, a plus 45-degree hole. Hole 71-8, drilled horizontally in the same azimuth, intersected only minor amounts of molybdenite mineralization.

These results indicate that the mineralization encountered in the 1050 adit and in the surface drill holes apparently does not extend to the 850 level in the area covered by the 1971 underground drilling. Also, the absence of ore-grade mineralization in most of the upholes drilled toward the areas where fair grades of molybdenite mineralization had been intersected in surface drill holes shows that the mineralized zones are lens-like in form.

Two nearly horizontal surface drill holes were collared from the station on the east side of Roundy Creek at an elevation of 500 feet (Fig. 22). These holes encountered leucocratic 'quartz-eye' quartz monzonite porphyry cut by lenses of alaskite and post-mineral lamprophyre dykes over most of their lengths. Uniform grades of molybdenite mineralization were found in both holes, occurring primarily as selvages in narrow quartz veinlets and as fracture fillings. Previous drilling by the company had indicated the presence of 7 to 8 million tons with an average grade of 0.11 per cent molybdenite.

WORK DONE: Two surface diamond-drill holes totalling 1,126 feet were completed. Nine diamond-drill holes were drilled from underground stations totalling 2,078 feet.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 91-94.

TOTAL (No. 31, Fig. C)

By N. C. Carter

LOCATION: Lat. 55° 31'-34' Long. 129° 26'-28' (103P/11W)
SKEENA M.D. The claims cover an area north and south of the Dak River, 4 miles northeast of Alice Arm. Elevations range from 500 to 3,000 feet.

CLAIMS: Sixty-six TOTAL claims.

ACCESS: By trail or helicopter from Alice Arm.

OWNER: D. COLLISON, Alice Arm.

METAL: Copper.

DESCRIPTION:

The claim group extends north and south of the Dak River covering the south slope of Gravel Top Ridge and the northwest slope of Wilauks Mountain. The north part of the claim group surrounds the four Crown-granted Red Bluff claims. The area is underlain chiefly by fine-grained feldspar porphyry altered from hornblende or augite porphyry. The feldspar porphyry body is oriented in a north-south direction and is 3 miles long by 1 mile wide. It intrudes volcanic and sedimentary rocks, and is apparently a complex intrusion representing a volcanic centre related to Jurassic volcanism. The porphyry contains abundant disseminated pyrite and locally some chalcopyrite. Prominent gossans have developed on some of the steep slopes, most notably in the vicinity of the Red Bluff showings above Gumas Creek.

The south part of the claim group is essentially a relocation of claims held by Mayfair Moly Mines Ltd. between 1966 and 1968. Three copper showings, occurring in a northeast trending zone, are known south of the Dak River. The most northerly of these is situated 1,000 feet west of Washout Creek at river level, where an old trench exposes intensely fractured feldspar porphyry and augite porphyry that contain finely disseminated pyrite and chalcopyrite over a length of 125 feet. One thousand feet to the southwest, at an elevation of 1,000 feet, intensely fractured siliceous greywacke is exposed in several open cuts over a distance of 100 feet. The rock contains abundant disseminated pyrite and some chalcopyrite. Malachite staining is widespread. A chip sample across 10 feet assayed 0.21 per cent copper and a trace of gold. The old San Diego copper showings are believed to be situated a further 2,000 feet to the southwest where iron-stained feldspar porphyries are exposed in several steep gullies. This property was drilled in 1916, but recent slides have obliterated all traces of the old workings.

WORK DONE: Construction of 2 miles of trail across the tide flats at Alice Arm to give access to the property and general prospecting in the vicinity of the showings.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 43 (Dak, Bel, etc.) and p. 48 (Red Bluff).

HOMEGUARD (No. 11, Fig. C)

LOCATION: Lat. 55° 39' Long. 129° 30' (103P/11W, 12E)
SKEENA M.D. At approximately 1,800 feet elevation in the Kitsault Valley on the east side of the Kitsault River, 14 miles north of Alice Arm.

CLAIMS: HOMEGUARD 1 to 8.

ACCESS: By road from Alice Arm, 14 miles.

OWNER: Homeguard Mines Ltd.

OPERATOR: SILVER BUTTE MINES LTD., 705, 850 West Hastings Street, Vancouver 1.

METALS: Copper, gold, silver.

DESCRIPTION: Chalcopyrite stringers and lenses occur with quartz in green pyroclastic rocks.

WORK DONE: Claims and topography mapped; surface workings mapped; surface geological mapping, 1 inch equals 100 feet covering all claims; magnetometer survey covering all claims; trenching, 120 feet on Homeguard 1 and 3.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 88-90.

E and D (WILDCAT) (No. 30, Fig. C)

By N. C. Carter

LOCATION: Lat. 55° 40' Long. 129° 31' (103P/12E)
SKEENA M.D. West of the Kitsault River, 15 miles north of Alice Arm.

CLAIMS: E and D 1 to 24.

ACCESS: By road and trail from Alice Arm.

OWNERS: E. Anderson and D. Collison.

OPERATOR: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

A description of the regional setting of the property is contained in Geology, Exploration, and Mining in British Columbia, 1970. New trenches near the upper two adits were examined in 1971.

A trench 30 feet southeast of the upper adit at an elevation of 1,760 feet exposes a quartz sulphide vein in a northwest striking, moderately north dipping fracture zone in medium green crystal tuffs. The vein is up to 3 feet wide and contains chalcopyrite, sphalerite, and some galena. Half-inch-wide stringers of chalcopyrite in both the hangingwall and footwall parallel the trend of the major vein. Three samples taken across the width of the zone yielded results as follow:

Sample	Location	Width *inches*	Au	Ag *oz./ton*	Cu *per cent*	Pb *per cent*	Zn *per cent*
2206	Vein	26	Trace	2.2	3.32	0.21	3.78
2207	Hangingwall	40	Trace	0.9	1.54	Trace	0.04
2208	Footwall	28	----	Trace	0.27	0.03	0.18

The number 2, or middle adit, at an elevation of 1,730 feet and 200 feet northwest of the trench was examined in 1971. The adit consists of 400 feet of drifts and crosscuts, the initial crosscut being parallel to a lamprophyre dyke which is up to 30 feet wide. Pyrite is widely disseminated in the volcanic rocks throughout the adit, but only minor chalcopyrite was seen. The position of the adit relative to the trench indicates that it would be impossible for the adit to intersect the north dipping mineralized structure exposed in the trench.

WORK DONE: Blasting and trenching by owners; operator completed geochemical and geological surveys. The option was terminated in late 1971.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 87-89.

RED POINT, COPPER CLIFF, DAN PATCH, DANA, SURPRISE

(No. 10, Fig. C)

By N. C. Carter

LOCATION: Lat. 55° 42'-43' Long. 129° 32'-34' (103P/12E)
SKEENA M.D. Between 1,000 and 3,700 feet elevation in the Kitsault Valley, 18 miles north of Alice Arm.

CLAIMS: Ninety-one claims and fractions, the principal claims being the DOLLY VARDEN, TORBRIT, NORTH STAR, WOLF, MUSKETEER, COPPER CLIFF, SURPRISE, and RED POINT.

ACCESS: By road from Alice Arm, 18 miles.

OWNER: DOLLY VARDEN MINES LTD., 1400, 409 Granville Street, Vancouver 2.

METALS: Silver, copper, lead, zinc, cadmium, barite.

DESCRIPTION: Silver-lead-zinc veins and some copper mineralization occur in fragmental volcanic rocks and related intrusions.

WORK DONE: The 1971 exploration programme was confined to the Surprise, Musketeer, and Torbrit properties near the south end of the company's holdings in the upper Kitsault Valley. Geological mapping was extended south and east from the work of the previous summer and soil samples were collected in the area of the Musketeer claims. A new quartz-galena vein was discovered near Musket Creek.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 81-86.

LITTLE JOE, GYPSY (No. 3, Fig. C)

LOCATION: Lat. 55° 59′ Long. 129° 55′ (103P/13W)
SKEENA M.D. At approximately 2,400 feet elevation 3.5 miles north of Stewart on Albany Creek.

CLAIMS: LITTLE JOE, GYPSY, LUCKY SEVEN Crown grants plus 19 recorded claims and fractions.

ACCESS: By helicopter from Stewart, 3.5 miles or by low-gradient trail from Bear River valley, three hours.

OPERATOR: STARBIRD MINES LTD., 3505 West 30th Avenue, Vancouver 8.

METALS: Silver, lead, zinc, gold, copper.

DESCRIPTION: The property is underlain by Bitter Creek Formation consisting of ferruginous argillites and minor interbedded limestone. The sediments are cut by several shear zones striking about north 24 degrees west with vertical dips. Quartz and calcite veins and stringers containing copper, lead, zinc, and silver occur within these zones.

WORK DONE: Geochemical soil survey, 36 samples and line-cutting, 1 mile on Little Joe.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 57; Assessment Report 3083.

GOLD CLIFF (No. 12, Fig. C)

LOCATION: Lat. 55° 57′ Long. 129° 57′ (103P/13W)
SKEENA M.D. At approximately 3,000 feet elevation on the east slope of Bear River Ridge, 2.5 miles north of Stewart.

CLAIMS: GOLD CLIFF 1 to 6, GOLD CLIFF 1 to 3 Fractions, JERRY DOG, BARNEY, TOM.

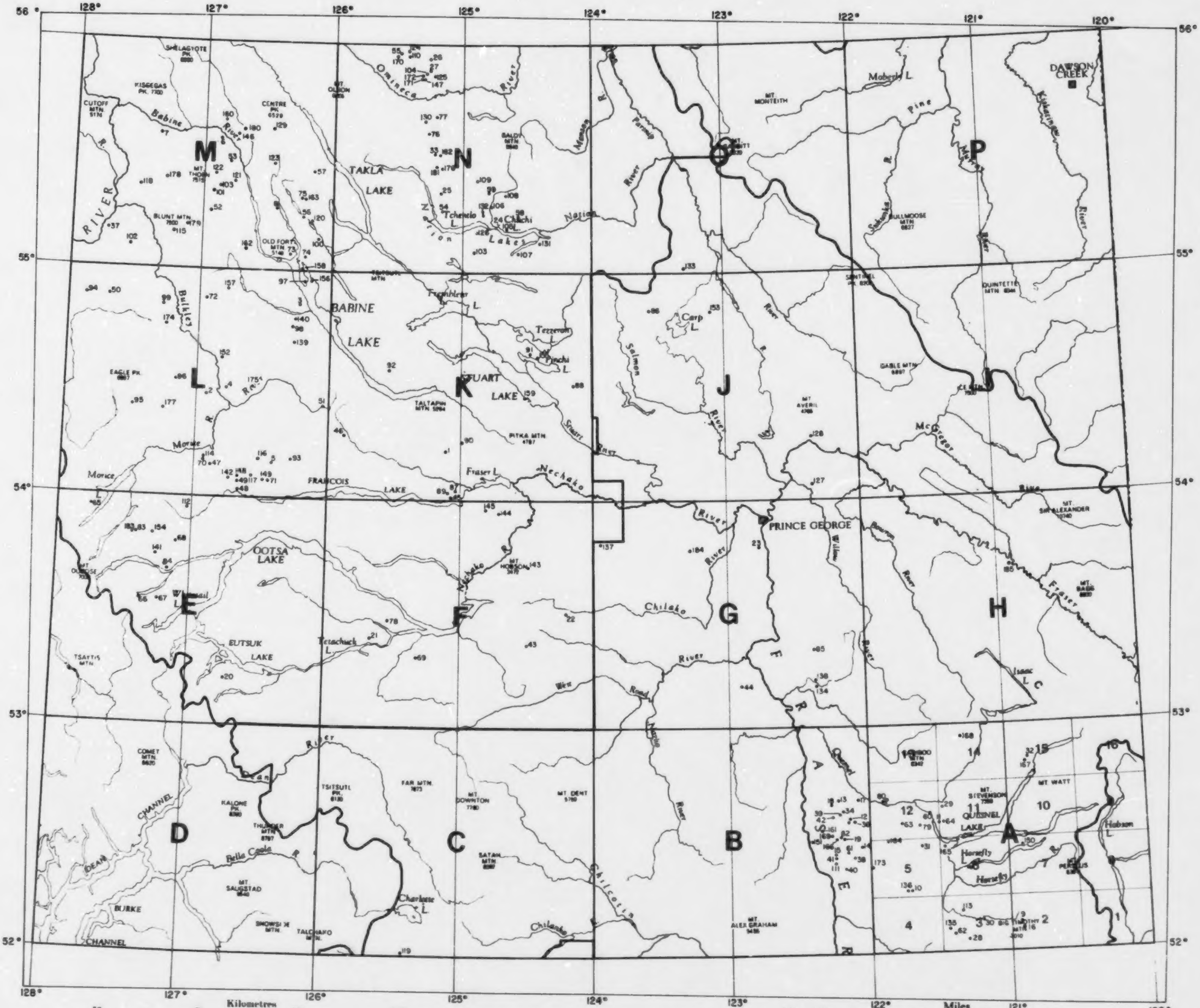
ACCESS: By helicopter from Stewart, 2.5 miles.

OWNER: ATHENA MINES LTD., 315, 543 Granville Street, Vancouver 2.

METALS: Silver, gold, zinc, lead.

WORK DONE: Electromagnetic and magnetometer survey covering Gold Cliff 4 and 6.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 76.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SHELAGYOTE PK.
KISGEGAS PK. 7700
CUTOFF MTN 5170
Babine River
CENTRE PK. 6529
MT. OLSON
Omineca River
BALDY MTN
MT MONTEITH
Moberly L.
Pine R.
DAWSON CREEK
MT THORN
BLUNT MTN 7600
TAKLA LAKE
Tchentlo L.
Chuchi L.
Nation Lakes
Manson R.
Parsnip River
BULLMOOSE MTN 6827
OLD FORT MTN
RIVER
Bulkley R.
BABINE LAKE
Trembleur L.
Tezzeron L.
Pinchi L.
Carp L.
Salmon River
SENTINEL PK.
QUINTETTE MTN
EAGLE PK.
STUART LAKE
TALTAPIN MTN
PITKA MTN
MT AVERIL
GABLE MTN
McGregor
Morice R.
Morice L.
FRANCOIS LAKE
Fraser L.
Nechako River
Stuart River
PRINCE GEORGE
MT. SIR ALEXANDER
OOTSA LAKE
MT HOBSON
Whitesail L.
Chilako
Willow River
Bowron River
Fraser River
MT. BAGG
TSAYTIS MTN
EUTSUK LAKE
Tetachuck L.
Isaac L.
COMET MTN
TSITSUTL PK.
FAR MTN.
MT DOWNTON
MT DENT
Dean River
KALONE PK.
THUNDER MTN
CHANNEL
DEAN
Bella Coola R.
SATAH MTN
Quesnel
MT STEVENSON
MT WATT
QUESNEL LAKE
Hobson L.
Horsefly L.
Horsefly
MT. SAUGSTAD
BURKE CHANNEL
SNOWSHOE MTN.
TALCHAKO
Charlotte L.
Chilcotin
Chilanko
MT. ALEX GRAHAM
TIMOTHY MTN
MT PERSEUS
FRASER
Kilometres
50
0
50
100
Miles
20
10
0
20
40
60
80

Figure D. INDEX MAP TO PROPERTIES IN NTS GRID DIVISION 93

KEY TO PROPERTIES ON INDEX MAP, FIGURE D.

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3. TOP, CAVONA, page 184.
4. PAT, ALICE, page 174.
5. CMGW, page 169.
6. GUY, TRI, CON, page 194.
7. 7A, page 195.
8. SPARK, JOY, page 187.
9. J, page 129.
10. FIR RIDGE, page 132.
11. MANX, MORNING STAR, page 134.
12. DS, page 142.
13. HAM, page 143.
14. LET, page 138.
    ANT, page 137.
    TAN, ANT, page 137.
15. IT, AT, page 140.
16. BOSS MOUNTAIN MINE, page 129.
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18. PHOKAWE, page 143.
19. GR, page 138.
20. POND, page 144.
21. GODOT, page 158.
22. TAT, page 159.
23. MINOU, page 162.
24. CHUCHI, page 198.
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27. HAGGIS, page 212.
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29. MARINER, page 134.
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31. COL, page 131.
32. NA, page 136.
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33. BURN, page 202.
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53. MAT, page 190.
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68. SIB, page 147.
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75. DA-NAK, page 192.
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82. HD, page 139.
83. BERG, page 157.
84. LEN, page 145.
85. JO, page 161.
86. ZAP, page 163.
87. PAT, page 164.
88. SUNSHINE, page 167.
89. ENDAKO MINE, page 165.
    NU, ELK, page 165.
90. HAN, FIR, page 164.
91. CIN, page 167.
92. BL, page 168.
93. SG, page 168.
94. JAN, WINDY, page 176.
95. WOLVERINE, LG, page 173.
96. HB, AJ, page 176.
97. KETZA, JEN, RUM, page 183.
98. THEZAR, page 175.
99. GLACIER GULCH, page 177.
100. HAUT, page 185.
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104. DUCK, DUKE, RONDAH, page 213.
105. TOP, page 196.
106. TEA, page 201.
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KEY TO PROPERTIES ON INDEX MAP, FIGURE D. *(Con't)*

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114. RD, page 172.
115. MARY, page 188.
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117. K, page 170.
PAR, page 170.
118. SUNRISE, page 189.
119. KF, page 144.
120. MAST, page 185.
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122. RO, page 190.
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124. KIP, page 218.
125. BOX, page 211.
126. NIGHT HAWK, VECTOR, page 197.
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156. GRANISLE MINE, page 178.
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172. DOROTHY, page 214.
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174. MIDNIGHT, page 177.
175. LAKEVIEW, LV, page 173.
176. HAL, page 199.
177. ROCK, page 173.
178. ACE, page 189.
179. ROB, page 188.
180. PHI, page 193.
181. KW, page 200.
182. NIK, SAN, page 199.
183. SET, LOST, ICE, page 157.
184. DAHL LAKE QUARRY, page 467.
185. PTARMIGAN CREEK QUARRY, page 467.

EAST CENTRAL BRITISH COLUMBIA
(NTS Division 93 Figure D)

QUESNEL LAKE 93A

J (No. 9, Fig. D)

LOCATION: Lat. 52° 05′-10′ Long. 120° 48.5′-60′ (93A/2W)
CARIBOO M.D. On the eastern slope of Takomkane Mountain on Buster Lake, at elevations of 4,000 to 6,000 feet.
CLAIMS: J, JG, RS, totalling 218.
ACCESS: From Hendrix Lake by four-wheel-drive vehicle.
OWNER: VIRGO EXPLORATION CORPORATION, 1101, 510 West Hastings Street, Vancouver 2.
WORK DONE: During 1970, detailed geochemical silt and soil sampling and a magnetometer survey were done. A total of 270 silt samples and 1,307 soil samples were collected.
REFERENCES: Assessment Reports 2350, 2934.

BOSS MOUNTAIN MINE (No. 16, Fig. D)

By E. Sadar

LOCATION: Lat. 52° 05.9′ Long. 120° 54.4′ (93A/2W)
CARIBOO M.D. The mine is located at the headwaters of Molybdenite Creek on the east slope of Takomkane Mountain, about 6 miles west of Hendrix Lake.
CLAIMS: Ninety-four claims including 11 Crown grants.
ACCESS: By road from 100 Mile House northeast via Canim Lake road, 57 miles.
OWNER: NORANDA MINES, LIMITED (Boss Mountain Division), Hendrix Lake.
METAL: Molybdenum (production shown in Table 1).
DESCRIPTION: Molybdenite occurs in breccia pipes and quartz veins in quartz diorite.
WORK DONE: Drifting and crosscutting, 2,550 feet; raising, 2,500 feet; subdrifting, 3,570 feet; blast hole drilling, 180,000 feet; underground diamond drilling, 6,574 feet; excavating of shaft stations and pockets, 31,000 cubic feet. The property suspended production on December 3, 1971 for an indefinite period. A limited amount of exploration and development continued for the remainder of the year.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 210.

TRI (No. 30, Fig. D)

LOCATION: Lat. 52° 07.5′-09′ Long. 121° 11′-16′ (93A/3)
CARIBOO M.D. On Moffat Creek, 6 miles north of Murphy Lake and 48 miles east of Williams Lake.
CLAIMS: TRI 13 to 91, 106.
ACCESS: By gravel road from Williams Lake.
OWNER: GREEN LAND MINING LTD., 2050, 777 Hornby Street, Vancouver 1.
WORK DONE: Line-cutting, 24.5 miles; induced polarization survey, 24 line-miles.
REFERENCES: Assessment Reports 3068, 3069.

CLEO (No. 28, Fig. D)

LOCATION: Lat. 52° 03' Long. 121° 18' (93A/3W)
CARIBOO M.D. On Murphy Lake, 24 miles north-northeast of Lac la Hache.
CLAIMS: CLEO 1 to 24.
ACCESS: By aircraft from Lac la Hache.
OPERATOR: NITRO DEVELOPMENTS INC., 625, 925 West Georgia Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The area is underlain by Jurassic-Cretaceous granodiorite, monzonite, and hornblende-biotite syenite.
WORK DONE: Magnetometer survey, 26.6 line-miles; geochemical soil survey, 1,404 samples.
REFERENCES: Assessment Reports 3027, 3387.

BORY (No. 62, Fig. D)

LOCATION: Lat. 52° 02.8'-06' Long. 121° 17.2'-27.5' (93A/3W)
CARIBOO M.D. Near Murphy Lake, 18 miles north of Lac la Hache.
CLAIMS: BORY 1 to 202.
ACCESS: Via secondary road from Lac la Hache, 18 miles.
OWNER: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The claims are underlain by quartz monzonite and granodiorite of Jurassic and/or Cretaceous age with chalcopyrite in veinlets and disseminations.
WORK DONE: Induced polarization and resistivity survey, 40 line-miles; diamond drilling, four holes totalling 849 feet on Bory 138, 197.
REFERENCE: Assessment Report 3232.

M (No. 113, Fig. D)

LOCATION: Lat. 52° 09.5'-12.5' Long. 121° 15'-28' (93A/3W)
CARIBOO M.D. At approximately 3,600 feet elevation north and south of Moffat Creek, east of the north tip of McIntosh Lake.
CLAIMS: M 1 to 232.
ACCESS: By road from Horsefly, 25 miles.
OWNER: Helicon Explorations Limited.
OPERATOR CARIBOU SYNDICATE, 145 East 15th Street, North Vancouver.
DESCRIPTION: The property is underlain by Tertiary (?) volcanic rocks of undetermined thickness and lies just southeast of an area covered by Nicola volcanic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 2,640 feet, induced polarization survey, and airborne magnetometer survey at 300 feet covering all claims; road construction, 5 miles (property access from Moffat Creek road); percussion drilling, four holes totalling 1,160 feet.

WC (No. 159, Fig. E)

LOCATION: Lat. 51° 56.5' - 52° 01' Long. 121° 20'-25' (93A/3W)
Report on this property in section 92P/14W.

LS (No. 135, Fig. D)

LOCATION: Lat. 52° 06' Long. 121° 26' (93A/3W)
CARIBOO M.D. At 2,000 feet elevation 1 to 3 miles southeast of the east end of Tillicum Lake, approximately 25 miles east of 150 Mile House.
CLAIMS: LS 1 to 44, LS 1 to 10 Fractions.
ACCESS: By Horsefly and Merril-Wagner roads from 150 Mile House, about 40 miles.
OWNER: Helicon Explorations Limited.
OPERATOR: CARIBOU SYNDICATE, 145 East 15th Street, North Vancouver.
DESCRIPTION: Percussion sludge samples indicate the area is underlain by a medium grey volcanic rock cut by numerous acidic dykes. Alteration is of low intensity, consisting mostly of silicification.
WORK DONE: Induced polarization and air magnetometer surveys; percussion drilling, five holes totalling 1,220 feet on LS 1-5.

COL (No. 31, Fig. D)

LOCATION: Lat. 52° 28'-29' Long. 121° 35'-40' (93A/5E)
CARIBOO M.D. One and a half miles northwest of Edney Lake, 9 miles southwest of Likely.
CLAIMS: COL 1 to 54, LINDA 1 and 2 Fractions.
ACCESS: Via logging roads from the McLeese Lake-Likely road.
OWNER: CANEX AERIAL EXPLORATION LTD., 700, 1030 West Georgia Street, Vancouver 5.
WORK DONE: Magnetometer survey, 25.19 line-miles (1970); line-cutting and induced polarization survey, 6.6 line-miles on eastern portion of claim group.
REFERENCES: Assessment Reports 3041, 3042.

SAM (No. 136, Fig. D)

LOCATION: Lat. 52° 16' Long. 121° 43' (93A/5E)
CARIBOO M.D. One mile north of the east end of Beaux Yeux Lake, 26 miles east of Williams Lake.
CLAIMS: SAM 21 to 44, SAM 1 to 5 Fractions.
ACCESS: By Horsefly road from 150 Mile House, 20 miles.
OWNER: Helicon Explorations Limited.
OPERATOR: CARIBOU SYNDICATE, 145 East 15th Street, North Vancouver.
DESCRIPTION: Surface exposures are feldspar-hornblende porphyry underlain by a hornfelsed argillite of unknown thickness.
WORK DONE: Surface geological mapping, 1 inch equals 500 feet; induced polarization survey; magnetometer survey; road construction, 2 miles (drill hole access within claims); percussion drilling, six holes totalling 190 feet.

FIR RIDGE (No. 10, Fig. D)

LOCATION: LAT. 52° 16' Long. 121° 44.5' (93A/5E)
CARIBOO M.D. At an elevation of 3,500 feet 2 miles west of Miocene.

CLAIMS: FIR RIDGE 1 to 4, FIR POINT, PINE TREE.

ACCESS: Via road from Miocene, 2 miles.

OWNER: GRANDEUR MINES LTD., 448 Seymour Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: The claims are underlain by chert, argillite, greenstone, and limestone of the Cache Creek Group. Copper mineralization occurs in limestone.

WORK DONE: A magnetometer survey covering 7 line-miles was made in 1970.

REFERENCES: Assessment Reports 2216, 3129.

MD (No. 164, Fig. D)

LOCATION: Lat. 52° 24'-34' Long. 121° 46'-59' (93A/5W, 12W)
CARIBOO M.D. At approximately 3,700 feet elevation bounded by Jacobie Lake on the east, Chambers and Joan Lakes on the west, and Limestone Mountain on the south.

CLAIMS: MD, totalling 281 claims in seven groups.

ACCESS: By road from McLeese Lake, 30 miles.

OWNER: DUSTY MAC MINES LTD., 1710, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geochemical soil survey, 600 samples covering MD 1-84, 530 samples covering MD 85-112, 313-324, and 900 samples covering MD 112-270; induced polarization survey, 13 line-miles; road construction, 1 mile (within claims); trenching, 1,500 feet on MD 89, 104, 106-108, 111.

DJ, GOLDEN ZONE (No. 173, Fig. D)

LOCATION: Lat. 52° 22-24.3' Long. 121° 58' - 122° 01' (93A/5W)
CARIBOO M.D. At approximately 2,800 feet elevation south of Marquerite Lake, 20 miles east of McLeese Lake.

CLAIMS: DJ, GOLDEN ZONE, totalling 80.

ACCESS: By road from McLeese Lake, 20 miles.

OWNER: QUELITE & MAGNESIUM PRODUCTS LTD., Box 1498, Quesnel.

METALS: Copper, molybdenum, gold, silver.

DESCRIPTION: Mineralization is present in altered limestone and granodiorite.

WORK DONE: Surface geological mapping, 1 inch equals 1,200 feet; geophysical survey, 4 line-miles; geochemical survey, 97 samples; road construction, 4 miles; trenching, approximately 2,000 feet; stripping, 4,000 square feet; surface diamond drilling, nine holes totalling 220 feet; percussion drilling, 31 holes totalling 974 feet.

FLY (No. 81, Fig. D)

LOCATION: Lat. 52° 21' Long. 121° 17' (93A/6W)
CARIBOO M.D. At approximately 3,000 feet elevation at Lemon Lake, 6 miles east-northeast of Horsefly.
CLAIMS: FLY 1 to 40, ARON 1 to 28.
ACCESS: By road from Horsefly, 7 miles.
OPERATOR: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.
METAL: Copper.
WORK DONE: Stripping, 700 feet; percussion drilling, 14 holes totalling 2,200 feet on Fly 12, 20 and Aron 13-18.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 210.

MB (No. 165, Fig. D)

LOCATION: Lat. 52° 26'-29' Long. 121° 24'-30' (93A/6W)
CARIBOO M.D. At approximately 3,000 feet elevation south of Mitchell Bay on Quesnel Lake, 8 miles north-northwest of Horsefly.
CLAIMS: MB 1 to 200.
ACCESS: By road from McLeese Lake, 50 miles.
OWNER: DUSTY MAC MINES LTD., 1710, 1177 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Chalcopyrite, pyrite, and malachite occur in garnet-epidote skarn in a series of rhyolite tuff, augite andesite, basalt, and dacite rocks.
WORK DONE: Geochemical soil survey, 300 samples covering all claims.

JAMIE (No. 150, Fig. D)

LOCATION: Lat. 52° 26.6' Long. 120° 55' (93A/7W)
CARIBOO M.D. At approximately 2,700 feet elevation on Suey Bay, Horsefly Lake, 26 miles northeast of Horsefly.
CLAIMS: JAMIE 1 to 8, JAMIE 71-1 to 71-9.
ACCESS: By boat from Horsefly Landing, 26 miles.
OWNER: GREEN EAGLE MINES LTD., 507, 789 West Pender Street, Vancouver 1.
METALS: Copper, silver.
DESCRIPTION: Triassic and/or Jurassic volcanic and sedimentary rocks are intruded by fingers of Jurassic and/or Cretaceous rocks of intermediate to basic composition.
WORK DONE: Induced polarization survey covering Jamie 71-1 and 71-4; trenching, 30 feet on Jamie 71-1.
REFERENCE: Assessment Report 3684.

MARINER (No. 29, Fig. D)

LOCATION: Lat. 52° 39′ Long. 121° 28′ (93A/11W)
CARIBOO M.D. At elevations of 3,000 to 3,500 feet on Cedar Creek, 6 miles southeast of Likely.
CLAIMS: MARINER 1 to 25.
ACCESS: Via dirt road from Likely.
OWNER: SPANALLEN MINING LTD., 8939 Glenwood Street, Chilliwack.
METALS: Copper, gold, silver.
DESCRIPTION: Pyrite and chalcopyrite occur in shear zones, slips, and joint planes in andesite.
WORK DONE: Magnetometer survey.
REFERENCE: Assessment Report 3121.

MANX, MORNING STAR (No. 11, Fig. D)

LOCATION: Lat. 52° 33′ Long. 121° 30′ (93A/11W)
CARIBOO M.D. On Cedar Creek, 4 miles from Likely.
CLAIMS: MANX 1 to 8, MORNING STAR 4 to 6.
ACCESS: By dirt road from Likely.
OPERATOR: CANAT EXPLORATIONS LIMITED, c/o Jack E. La Fleur, 583 Howe Street, Vancouver 1.
WORK DONE: Geochemical soil survey, 471 samples in 1970.
REFERENCE: Assessment Report 2835.

RIP, JOCK (No. 64, Fig. D)

LOCATION: Lat. 52° 33′-35′ Long. 121° 26′-31′ (93A/11W, 12E)
CARIBOO M.D. At elevations of 3,000 to 3,500 feet on Cedar Creek, 6 miles east-southeast of Likely.
CLAIMS: RIP 1 to 21, JOCK 1 to 17, JOY 1 to 6, MESKY 1 to 6, ERIC 1 to 6.
ACCESS: Via dirt road from Likely, 6 miles.
OWNER: LEEMAC MINES LTD., 630, 890 West Pender Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Pyrite, chalcopyrite, and gold occur along shear zones, slips, and joint planes in andesitic agglomerate, breccia, and tuff.
WORK DONE: Magnetometer and geochemical surveys on Joy 1-6, Jock 1-8, 12, 14, 16, 17, and Rip 2-19.
REFERENCES: Assessment Reports 3278, 3279.

POLLEY, RED ROCK (No. 60, Fig. D)

LOCATION: Lat. 52° 37.2′ Long. 121° 34′ (93A/12E)
CARIBOO M.D. Near Likely, on the south side of the Quesnel River at elevations of 2,400 to 3,200 feet.
CLAIMS: POLLEY, RED ROCK, APRIL, MAY, PINE, FIR, RUSS, NORA, SHIRLEY, TIKI, totalling 101.
ACCESS: Via all-weather secondary road from 150 Mile House, 45 miles.

OWNER: ARDO MINES LTD., 630, 890 West Pender Street, Vancouver 1.
METALS: Copper, gold.
WORK DONE: Line-cutting, geochemical and magnetometer surveys, 16 line-miles on Nora 1-16; magnetometer survey on Polley 1-4; diamond drilling, 1,000 feet in 1970.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 175; Assessment Reports 3228, 3229.

CARIBOO-BELL (No. 79, Fig. D)

By E. Sadar

LOCATION: Lat. 52° 33.5′ Long. 121° 38.5′ (93A/12E)
CARIBOO M.D. At 3,200 feet elevation on Mount Polley, between Bootjack and Polley Lakes, 5 miles southwest of Likely.
CLAIMS: BJ, GREEN, RED, BLUE, and others totalling 310.
ACCESS: The property is accessible from the Williams Lake - Likely road via 7 miles of road southeast from Morehead along Morehead and Bootjack Lakes.
OWNER: CARIBOO-BELL COPPER MINES LIMITED, 700, 1177 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The Mount Polley stock is extensively mineralized with chalcopyrite, particularly in the breccia zones.
WORK DONE: No new field work was done. Evaluation of previous results and metallurgical test work were carried out.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1966, pp. 126-133; *B.C. Dept. of Mines & Pet Res.*, G.E.M., 1970, p. 208.

NIB (No. 63, Fig. D)

LOCATION: Lat. 52° 33.2′ Long. 121° 46′ (93A/12E)
CARIBOO M.D. Immediately west of Bootjack Lake, 8 miles southwest of Likely.
CLAIMS: NIB 1 to 24.
ACCESS: Via secondary road and road suitable for four-wheel-drive vehicle from Likely.
OPERATOR: JASON EXPLORERS LTD., 775, 555 Burrard Street, Vancouver 1.
WORK DONE: Line-cutting on NIB 19-24.
REFERENCE: Assessment Report 3263.

SLIDE, RIVER (No. 80, Fig. D)

LOCATION: Lat. 52° 39.8′ Long. 121° 54′ (93A/12W)
CARIBOO M.D. At approximately 2,800 feet elevation on the north bank of the Quesnel River, near Slide Mountain, 40 miles southeast of Quesnel.
CLAIMS: SLIDE, RIVER, totalling 71.
ACCESS: By four-wheel-drive vehicle from Quesnel, 40 miles.
OWNER: NIPPON MINING OF CANADA LTD., 607, 475 Howe Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Three chalcocite showings occur in dolomitic limestone along the boundary between the limestone and an andesitic volcanic complex.

WORK DONE: Surface geological mapping, 1 inch equals 5 feet on Slide 289 and 1 inch equals 20 feet on River 4 (surveying trench); geochemical soil survey, 1,070 samples covering 69 claims of Slide group; trenching, 30 feet on Slide 289.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 207.

BON, PARK, ROUNDTOP (No. 168, Fig. D)

LOCATION: Lat. 52° 56' Long. 121° 20' (93A/14W)
CARIBOO M.D. Between 2,600 and 3,500 feet elevation 16 miles southeast of Barkerville, between Nugget and Roundtop Mountains.

CLAIMS: BON, PARK, ROUNDTOP, PAR, TAB, BASE METAL, SILVER MTN., totalling 155.

ACCESS: By road from Barkerville, 16 miles southeast.

OWNER: COAST INTERIOR VENTURES LTD., 626 West Pender Street, Vancouver 2.

METALS: Silver, lead.

WORK DONE: Geochemical soil survey, 95 line-miles covering all but Par claims; road construction, 2 miles on Bon and Park claims; trenching, 500 feet on Park and Silver Mtn. claims; stripping, 7,290 yards on Park and Silver Mtn. claims; surface diamond drilling, six holes totalling 831 feet on Roundtop 10.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 207; Assessment Report 3521.

AI, LOU (No. 167, Fig. D)

LOCATION: Lat. 52° 49' Long. 120° 56' (93A/15W)
CARIBOO M.D. At approximately 4,300 feet elevation 6 miles westerly from north arm of Quesnel Lake, 3 miles northeast of Maeford Lake.

CLAIMS: AI 1 to 38, LOU 1 to 5.

ACCESS: By helicopter from Williams Lake, 70 miles.

OWNER: MOROCCO MINES LTD., 211, 850 West Hastings Street, Vancouver 1.

METALS: Silver, lead, zinc.

DESCRIPTION: A limestone replacement deposit.

WORK DONE: Induced polarization survey covering AI 1-38 and LOU 1-5 (in part); surface diamond drilling, three holes totalling approximately 580 feet on Lou 1 and 2 and four holes totalling approximately 800 feet on AI 11 and 13.

NA (No. 32, Fig. D)

LOCATION: Lat. 52° 50' Long. 120° 55'-57' (93A/15W)
CARIBOO M.D. Two miles north of Maeford Lake, 6 miles northwest of north arm of Quesnel Lake.

CLAIMS: NA 9 to 41.
ACCESS: By helicopter from Williams Lake, approximately 70 miles.
OWNER: HIGHLAND QUEEN MINES LTD., 1010, 789 West Pender Street, Vancouver 1.
WORK DONE: Line-cutting.
REFERENCE: Assessment Report 3148.

NA (No. 32, Fig. D)

LOCATION: Lat. 52° 50' Long. 120° 57'-59' (93A/15W)
CARIBOO M.D. Three miles north of Maeford Lake, 6 miles northwest of north arm of Quesnel Lake.
CLAIMS: NA 42 to 66.
ACCESS: By helicopter from Williams Lake, 70 miles.
OWNER: NEWVAN RESOURCES LTD. (formerly Vanguard Explorations Ltd.), 211, 850 West Hastings Street, Vancouver 1.
WORK DONE: Line-cutting.
REFERENCE: Assessment Report 3147.

QUESNEL 93B

TAN, ANT (No. 14, Fig. D)

LOCATION: Lat. 52° 26'-28' Long. 122° 02'-05' (93B/8E)
CARIBOO M.D. On Whitestone Lake, 11 miles east of McLeese Lake.
CLAIMS: TAN 1 to 22, ANT 1 to 4, 13 to 16.
ACCESS: Via McLeese Lake-Likely road.
OWNER: CELTIC MINERALS LTD., 201, 714 West Hastings Street, Vancouver 1.
WORK DONE: Magnetometer survey, 20.8 line-miles; geochemical soil survey.
REFERENCES: Assessment Reports 3060, 3386.

ANT (No. 14, Fig. D)

LOCATION: Lat. 52° 28' Long. 122° 03' (93B/8E)
CARIBOO M.D. Immediately north of Whitestone Lake, 11 miles east of McLeese Lake.
CLAIMS: ANT 5 to 12, 17 to 48.
ACCESS: Via the McLeese Lake-Likely road.
OWNER: W. L. McCULLAGH, 101, 535 Thurlow Street, Vancouver 5.
WORK DONE: A magnetometer survey covering 18 line-miles was done in 1970 on the Ant 5, 7-12, 17-20, 25-30, 46, and 48 claims.
REFERENCE: Assessment Report 2957.

LET (No. 14, Fig. D)

LOCATION: Lat. 52° 28' Long. 122° 06' (93B/8E)
CARIBOO M.D. Seven miles east of Cuisson Lake, on the southeast slope of Granite Mountain at elevations of 2,800 to 3,200 feet.
CLAIMS: LET 1 to 8 Fractions, 9 to 26.
ACCESS: From McLeese Lake, 9 miles by road and one-half mile by trail.
OWNER: MOROCCO MINES LTD., 1010, 789 West Pender Street, Vancouver 1.
DESCRIPTION: The area is underlain by Cache Creek sedimentary and volcanic rocks of Permian age, chiefly argillite, limestone, chert, andesite, tuff, and greenstone.
WORK DONE: A geochemical survey was made in 1970.
REFERENCE: Assessment Report 3001.

CUB, MUD, GAP (No. 38, Fig. D)

LOCATION: Lat. 52° 25'-27' Long. 122° 07'-11' (93B/8E)
CARIBOO M.D. Twenty miles northeast of Williams Lake, 6 miles east of McLeese Lake village at an elevation of 3,500 feet.
CLAIMS: CUB, MUD, GAP, totalling 79.
ACCESS: Via Highway 97 and the McLeese Lake-Likely road.
OWNER: RONRICO EXPLORATIONS LTD., 27B, 448 Seymour Street, Vancouver 2.
WORK DONE: Airborne magnetometer, electromagnetic, and radioactivity surveys, 80 line-miles.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 206; Assessment Reports 2504, 3146.

ELLEN (No. 61, Fig. D)

LOCATION: Lat. 52° 17'-28.8' Long. 122° 09'-12' (93B/8E)
CARIBOO M.D. On Fredy Creek, 9 miles northeast of McLeese Lake.
CLAIMS: ELLEN 1 to 110.
ACCESS: Via all-weather road from McLeese Lake.
OWNER: FRED GUMPEL, 609 Brandon Avenue, North Kamloops.
WORK DONE: Line-cutting and a magnetometer survey on Ellen 13-20, 29-36, 73-110.
REFERENCES: Assessment Reports 3230, 3231.

GR (No. 19, Fig. D)

LOCATION: Lat. 52° 30' Long. 122° 10' (93B/8E)
CARIBOO M.D. Southeastern slopes of Granite Mountain, 3 miles east of Gibraltar property.
CLAIMS: GR 1 to 20.
ACCESS: Via the Gunn Mines road 5.5 miles east of Cuisson Lake.
OWNER: VANGUARD EXPLORATIONS LTD., 1010, 789 West Pender Street, Vancouver 1.
METAL: Copper.

WORK DONE: A geochemical survey was made in 1970. About 300 feet of trenching was done on GR 1, 2, and 10 and five holes totalling 1,500 feet were drilled on GR 10 in 1971.
REFERENCE: Assessment Report 3080.

PAT (No. 40, Fig. D)

LOCATION: Lat. 52° 23'-24' Long. 122° 11'-15' (93B/8E)
CARIBOO M.D. Five miles southeast of McLeese Lake, 9 miles south of Granite Mountain.
CLAIMS: PAT 1 to 50.
ACCESS: Via secondary road from Highway 2.
OWNER: MINERAL MOUNTAIN MINING CO. LTD., 506, 540 Burrard Street, Vancouver 1.
WORK DONE: A geochemical survey on PAT 29-42 and 44, 617 samples collected.
REFERENCE: Assessment Report 3070.

HD (No. 82, Fig. D)

LOCATION: Lat. 52° 30.2' Long. 122° 13.6' (93B/8, 9)
CARIBOO M.D. At approximately 4,000 feet elevation 1 mile east of south end of Granite Lake.
CLAIMS: HA 1 to 6; HAS 1 to 4, 6, 10, 12 to 20; HD 5 to 12, 15 to 18 Fractions; FFE 13 to 19; CAROL 1 to 7 Fractions; VE 21, 22; LINDA 1 to 4.
ACCESS: By road from McLeese Lake, 12 miles.
OWNER: Gunn Mines Ltd.
OPERATOR: CANEX AERIAL EXPLORATION LTD., 800, 1030 West Georgia Street, Vancouver 5.
METALS: Copper, molybdenum.
DESCRIPTION: Chalcocite, chalcopyrite, and molybdenite occur in altered zones within quartz diorite.
WORK DONE: Surface diamond drilling, six holes totalling 2,472 feet on HD claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 205.

JAN, SB (No. 166, Fig. D)

LOCATION: Lat. 52° 30' Long. 122° 14' (93B/8E, 9E)
CARIBOO M.D. At approximately 4,000 feet elevation 9 miles east of McLeese Lake.
CLAIMS: JAN, SB, BP, BRON, totalling 98.
ACCESS: By road from Williams Lake, 35 miles.
OWNER: GUNN MINES LTD., 511, 925 West Georgia Street, Vancouver 5.
METALS: Copper, molybdenum.
DESCRIPTION: Chalcopyrite and molybdenite occur in a porphyry-type deposit. The host rock is quartz diorite with alteration zones of chlorite and sericite schist.

WORK DONE: Road construction, 1.5 miles (to drill sites on Bron and Jan claims); trenching, approximately 200 feet and stripping, approximately 600 cubic yards on *SB, BP, and Jan claims;* surface diamond drilling, five holes totalling 2,753 feet on Bron claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 205 (HD).

BARB (No. 41, Fig. D)

LOCATION: Lat. 52° 23′ Long. 122° 15′ (93B/8)
CARIBOO M.D. East of Duckworth Lake, 2 miles southeast of McLeese Lake.

CLAIMS: BARB, totalling 22.

ACCESS: By secondary road from McLeese Lake.

OWNER: GRAMARA MERCANTILE CORPORATION LTD. (formerly Gramara Mines Ltd.), 145, 890 West Pender Street, Vancouver 1.

METAL: Copper.

WORK DONE: Magnetometer survey, line-cutting, and geochemical soil sampling, 25 line-miles.

REFERENCES: *Assessment Reports 3049, 3149.*

BARB (No. 111, Fig. D)

LOCATION: Lat. 52° 24.5′ Long. 122° 15′ (93B/8)
CARIBOO M.D. On Malinda Creek, 1 mile east of McLeese Lake.

CLAIMS: BARB 1 to 12, RAM 1 to 8, 10, 12, 14.

ACCESS: From McLeese Lake via secondary road.

OPERATOR: GIBBEX MINES LTD., 101, 535 Thurlow Street, Vancouver 5.

WORK DONE: Magnetometer survey.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 175; Assessment Report 3369.

IT, AT (No. 15, Fig. D)

LOCATION: Lat. 52° 26′ Long. 122° 16.5′ (93B/8W)
CARIBOO M.D. Two miles north of McLeese Lake near Sheridan Creek, at an elevation of 2,900 feet.

CLAIMS: IT 3 to 16, AT 1 to 11.

ACCESS: Via the McLeese Lake-Likely road, then a branch road leading to Cuisson Lake.

OWNER: W. L. McCULLAGH, 101, 535 Thurlow Street, Vancouver 5.

WORK DONE: A geochemical survey covering 16 line-miles was done during 1970.

REFERENCE: Assessment Report 2956.

BIRD (No. 151, Fig. D)

LOCATION: Lat. 52° 28′-31.7′ Long. 122° 21′-26′ (93B/8W, 9W)
CARIBOO M.D. At approximately 3,000 feet elevation about 2 miles west of the Gibraltar mine open-pit and 1.5 miles east of Marguerite.

CLAIMS: BIRD, BEST, totalling 100.
ACCESS: By road from Marguerite, approximately 2 miles.
OWNERS: ROCKY MOUNTAIN TRENCH MINES LTD., WHITEY WILSON OIL & GAS LTD., and LOWER VALLEY MINES LTD., 622, 510 West Hastings Street, Vancouver 2.
WORK DONE: Magnetometer survey covering all claims.
REFERENCE: Assessment Report 3483.

ALM, RAM (No. 17, Fig. D)

LOCATION: Lat. 52° 38'-41' Long. 122° 05'-07' (93B/9E)
CARIBOO M.D. Approximately 28 miles southeast of Quesnel, on Beaver Creek.
CLAIMS: ALM 1 to 24, RAM 1 to 36.
ACCESS: Via the Quesnel-Likely road and logging road.
OWNER: RAMTON MINING CORPORATION LTD., 711, 475 Howe Street, Vancouver 1.
WORK DONE: An induced polarization survey, 8 line-miles of line-cutting, and geochemical sampling were done in 1970.
REFERENCES: Assessment Reports 3175, 3176.

VIC (No. 36, Fig. D)

LOCATION: Lat. 52° 33' Long. 122° 05.5' (93B/9E)
CARIBOO M.D. East of Skelton Lake, 15 miles north-northeast of McLeese Lake.
CLAIMS: VIC 1 to 18.
ACCESS: By road from McLeese Lake.
OWNER: BRADLEY COPPER LTD., 1010, 789 West Pender Street, Vancouver 1.
WORK DONE: Line-cutting.
REFERENCE: Assessment Report 3085.

TAN, GV (No. 35, Fig. D)

LOCATION: Lat. 52° 32'-35' Long. 122° 06'-10' (93B/9E)
CARIBOO M.D. West of Skelton Lake, approximately 15 miles northeast of McLeese Lake.
CLAIMS: TAN 1 to 42, GV 1 to 8, 17 to 19, 21 to 36.
ACCESS: Via secondary road from McLeese Lake, 15 miles.
OWNER: BRADLEY COPPER LTD., 1010, 789 West Pender Street, Vancouver 1.
WORK DONE: Line-cutting.
REFERENCE: Assessment Report 3026.

TOP (No. 34, Fig. D)

LOCATION: Lat. 52° 37'-38' Long. 122° 09'-14' (93B/9E)
CARIBOO M.D. At the headwaters of Burgess Creek, 10 miles east of Alexandria.

CLAIMS: TOP 53 to 76, 81 to 96, TOP 1 to 3 Fractions.
ACCESS: Via secondary gravel road from Marguerite, 12 miles.
OPERATOR: CAN-BASE INDUSTRIES LTD. (formerly St. Mary's Mines Ltd.), 470 Granville Street, Vancouver 2.
WORK DONE: Line-cutting and a magnetometer survey on Top 65-76 and 85-96.
REFERENCE: Assessment Report 2935.

TOP **(No. 34, Fig. D)**

LOCATION: Lat. 52° 34.7'-37' Long. 122° 09.3'-13.2' (93B/9E)
CARIBOO M.D. On Burgess Creek, 10 miles east of Alexandria.
CLAIMS: TOP 1 to 48.
ACCESS: Via secondary gravel road from Marguerite, 12 miles.
OWNER: ROKON MINES LTD., 200, 549 Howe Street, Vancouver 1.
WORK DONE: Geological mapping, 1 inch equals 4 miles covering all claims; road construction, 11 miles; trenching 960 cubic yards.

DS **(No. 12, Fig. D)**

LOCATION: Lat. 52° 33'-36' Long. 122° 10'-15' (93B/9E)
CARIBOO M.D. On Burgess Creek, 14 miles northeast of Marguerite.
CLAIMS: DS 1 to 54.
ACCESS: Via secondary road from Marguerite, 14 miles.
OPERATOR: COAST SILVER MINES LTD., 660, 890 West Pender Street, Vancouver 1.
DESCRIPTION: The property is underlain by granodiorite, granite, quartz diorite, and diorite of the Granite Mountain batholith.
WORK DONE: An induced polarization survey was done in 1970 on DS 1-4, 37, 38.
REFERENCE: Assessment Report 2936.

BURG **(No. 39, Fig. D)**

LOCATION: Lat. 52° 37' Long. 122° 14' (93B/9E)
CARIBOO M.D. North of Granite Mountain, 15 miles northeast of Marguerite.
CLAIMS: BURG 53 to 60.
ACCESS: Via logging road from Marguerite, 15 miles.
OWNER: PYRAMID MINING CO. LTD., 640, 890 West Pender Street, Vancouver 1.
WORK DONE: Line-cutting and geochemical soil sampling.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 174; Assessment Report 3130.

BB **(No. 42, Fig. D)**

LOCATION: Lat. 52° 36.5' Long. 122° 15' (93B/9E)
CARIBOO M.D. On Burgess Creek, 12 miles north-northeast of McLeese Lake.

CLAIMS: BB 1 to 12.
ACCESS: By helicopter from McLeese Lake, 12 miles.
OWNER: VALLEX MINES LTD., 403, 540 Burrard Street, Vancouver 1.
WORK DONE: Line-cutting.
REFERENCE: Assessment Report 3046.

HAM (No. 13, Fig. D)

LOCATION: Lat. 52° 38'-41' Long. 122° 14'-16' (93B/9)
CARIBOO M.D. Approximately 17 miles north-northeast of McLeese Lake and 8 miles southwest of the Quesnel River.
CLAIMS: HAM 1 to 40.
ACCESS: By helicopter from Williams Lake, 38 miles.
OWNER: JOHN MacGOWAN, 203, 6055 Vine Street, Vancouver 13.
WORK DONE: Line-cutting, 18.5 line-miles in 1970.
REFERENCE: Assessment Report 3104.

PHOKAWE (No. 18, Fig. D)

LOCATION: Lat. 52° 38'-40' Long. 122° 16'-19' (93B/9W)
CARIBOO M.D. Sixteen miles north-northeast of McLeese Lake, 8 miles east of the Fraser River.
CLAIMS: PHOKAWE, totalling 49.
ACCESS: By helicopter from Williams Lake, 36 miles.
OWNER: BILL HAMILTON, 6634 Imperial Street, South Burnaby.
WORK DONE: Line-cutting in 1970.
REFERENCES: Assessment Reports 3102, 3103.

GIBRALTAR MINE (No. 169, Fig. D)

LOCATION: Lat. 52° 31' Long. 122° 17' (93B/9W)
CARIBOO M.D. Between 3,000 and 4,000 feet elevation along Granite Creek and Granite Lake.
CLAIMS: Approximately 400.
ACCESS: By gravel road from McLeese Lake, 12 miles.
OWNER: Gibraltar Mines Ltd.
OPERATOR: PLACER DEVELOPMENT LIMITED, 700, 1030 West Georgia Street, Vancouver 5.
METALS: Copper, molybdenum.
DESCRIPTION: This is a porphyry-type deposit with quartz diorite host rock. Control is by fractures and foliation. Alteration is lower greenschist facies with sericite and chlorite. The quartz diorite is regionally saussuritized.
WORK DONE: Claims, topography, and surface workings mapped; surface geological mapping, 1 inch equals 50 feet covering Gibraltar East Zone; road construction, 23 miles; stripping, 80 acres on Gibraltar East Zone; surface diamond drilling, 26 holes totalling 11,585 feet on Gibraltar East and Granite Lake Zones.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 205.

AXEL (No. 161, Fig. D)

LOCATION: Lat. 52° 32' Long. 122° 20.5' (93B/9W)

CARIBOO M.D. Surrounding Teakettle Lake, 5 miles west-northwest of Granite Mountain.

CLAIMS: AXEL, MAX, JIB, PET, MOOSE, totalling 34.

ACCESS: By road from McLeese Lake, 10 miles.

OWNER: Axel Mines Ltd.

OPERATOR: ISO EXPLORATIONS LTD., 700, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Diorite intrudes volcanic rocks; narrow zones of alteration and mineralization occur in the diorite.

WORK DONE: Magnetometer survey, 29 line-miles and electromagnetic survey, 29 line-miles covering all claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 174; Assessment Report 3528.

ANAHIM LAKE 93C

KF (No. 119, Fig. D)

LOCATION: Lat. 52° 01' Long. 125° 23' (93C/3W)

CARIBOO M.D. At approximately 4,000 feet elevation near the southwest end of McClinchy Lake.

CLAIMS: KF, totalling 11.

ACCESS: By helicopter from Nimpo Lake, 22 miles.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METAL: Copper.

DESCRIPTION: Chalcopyrite and minor bornite occur in quartz stringers in breccia pipes within a granodiorite and quartz diorite intrusion.

WORK DONE: Magnetic survey.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 202.

WHITESAIL LAKE 93E

POND (No. 20, Fig. D)

LOCATION: Lat. 53° 10'-12.5' Long. 126° 42'-46' (93E/2E)

OMINECA M.D. South of Eutsuk Lake, 80 miles southwest of Burns Lake at elevations of 3,500 to 6,500 feet.

CLAIMS: POND 1 to 52.

ACCESS: By helicopter from either Burns Lake or Houston.

OPERATOR: TAURUS RESOURCES SYNDICATE, c/o J. R. Woodcock, 1521 Pemberton Avenue, North Vancouver.

WORK DONE: Stream geochemical survey.
REFERENCE: Assessment Report 2993.

LEN (No. 84, Fig. D)

LOCATION: Lat. 53° 41′ Long. 127° 10′ (93E/11E)
OMINECA M.D. At approximately 3,400 feet elevation 50 miles southwest of Houston, lying between Sweeney Lake on the north and Tahtsa Reach on the south.
CLAIMS: LEN, totalling 91.
ACCESS: By road from Houston, 80 miles.
OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Pyrite, chalcopyrite, and molybdenite occur as fillings and disseminations in a quartz diorite stock and surrounding hornfelsed volcanic rocks.
WORK DONE: Surface workings mapped; geochemical soil survey, three-quarters of a line-mile covering Len 5 and 6; road construction, one-quarter mile; surface diamond drilling, five holes totalling 2,854 feet on Len 6, 19, 20.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 104-107.

FAB (No. 87, Fig. D)

LOCATION: Lat. 53° 31′ Long. 127° 13′ (93E/11E)
OMINECA M.D. Between 3,800 and 5,000 feet elevation on the western tributary of Coles Creek, 6 miles south-southwest of the east end of Troitsa Lake.
CLAIMS: FAB 1 to 11, 33 to 92.
ACCESS: By helicopter from Tahtsa Reach, 12 miles.
OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs with minor bornite and molybdenite in a quartz vein stockwork spatially related to a small .feldspar-biotite porphyry stock.
WORK DONE: Surface geological mapping, 1 inch equals 200 feet; induced polarization and resistivity survey, 14.3 line-miles; and ground magnetometer survey, 20 line-miles covering all claims; trenching, 240 feet on Fab 49.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 104; Assessment Report 3309.

EMERALD GLACIER MINE (No. 141, Fig. D)

By W.G. Clarke

LOCATION: Lat. 53° 44.5′ Long. 127° 15.5′ (93E/11W)
OMINECA M.D. Between elevations of 6,000 and 6,500 feet on Mount Sweeney, in the Sibola Range north of Tahtsa Lake.

CLAIMS: Mineral lease M-15 (nine EMERALD and GLACIER Crown-granted claims) and 27 recorded claims.

ACCESS: By road from Houston, 60 miles.

OWNER: EMERALD GLACIER MINES LTD., Box 221, Terrace.

METALS: Silver, lead, zinc.

WORK DONE: A knuckled raise was driven from the 6275 level to the 6400 level. Three short drifts, less than 100 feet in total length, were driven for exploration. Geological underground mapping was done on the workings on 6275 level. There was no production. The mine closed at the end of September.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 107.

OVP, MK (No. 66, Fig. D)

LOCATION: Lat. 53° 33' Long. 127° 22' (93E/11W)
OMINECA M.D. Between 3,000 and 5,500 feet elevation at the southwest corner of Troitsa Lake, approximately 90 miles south of Smithers.

CLAIMS: OVP 2, 4, 6, 8, 10, 12 to 16, 18, 20 to 24, 33 to 36; MK 1 to 10, 20 to 32, 39 to 47, 57 to 59.

ACCESS: By helicopter from Smithers, 90 miles.

OWNER: Aston Resources Limited.

OPERATOR: CERRO MINING COMPANY OF CANADA LIMITED, 401, 1111 West Georgia Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: A quartz monzonite stock intrudes Hazelton Group rocks. The intrusion is cut by a series of feldspar porphyry dykes, several of which contain disseminated chalcopyrite mineralization.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet; geochemical soil and silt survey, 800 samples; line-cutting, 17 line-miles covering MK and OVP claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 98; Assessment Reports 2026, 3253.

JOW (No. 65, Fig. D)

LOCATION: Lat. 53° 56.2' Long. 127° 45.5' (93E/13W)
OMINECA M.D. Fifty miles southwest of Smithers and 2 miles west of Morice Lake at an elevation of 7,000 feet.

CLAIMS: JOW 1 to 20 (formerly PC).

ACCESS: By helicopter from Smithers.

OWNER: FRED H. JOWSEY, 9 Glengolan Road, Toronto 12, Ont.

METALS: Silver, lead, zinc.

DESCRIPTION: Pyrite, galena, and sphalerite occur in a network of quartz stringers in quartz porphyry.

WORK DONE: A geological survey of all the claims; an electromagnetic survey on the northwest corner of the claims.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 140 (PC); Assessment Reports 3251, 3252.

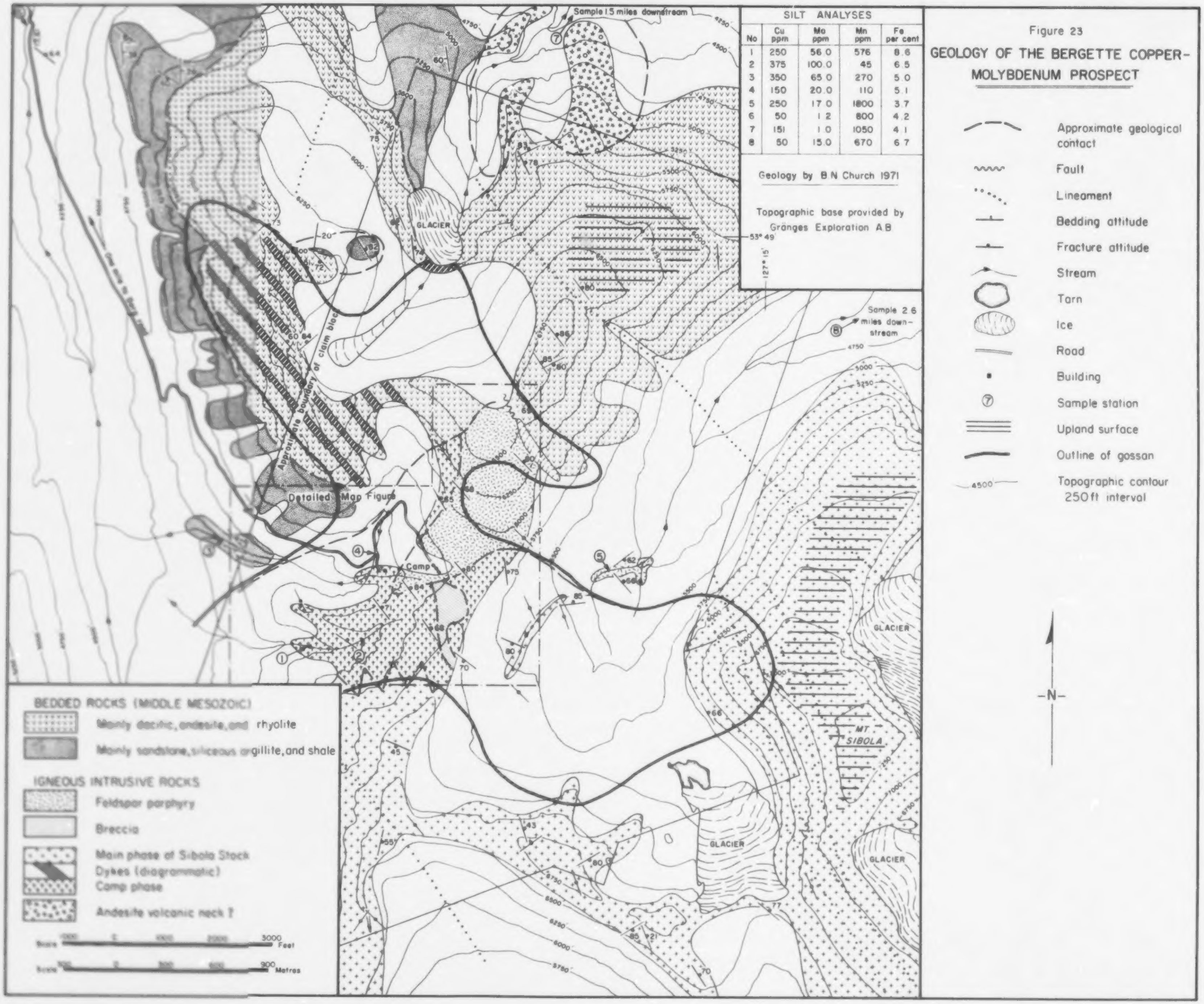
Approximate geological contact
Fault
Lineament
Bedding attitude
Fracture attitude
Stream
Tarn
Ice
Road
Building
Sample station
Upland surface
Outline of gossan
Topographic contour 250 ft interval
BEDDED ROCKS (MIDDLE MESOZOIC)
Mainly dacitic, andesite, and rhyolite
Mainly sandstone, siliceous argillite, and shale
IGNEOUS INTRUSIVE ROCKS
Feldspar porphyry
Breccia
Main phase of Sibola Stock
Dykes (diagrammatic)
Camp phase
Andesite volcanic neck ?
Scale 1000 0 1000 2000 3000 Feet
Scale 300 0 300 600 900 Metres
Sample 1.5 miles downstream
Sample 2.6 miles downstream
GLACIER
Camp
Detailed Map Figure
Approximate boundary of claim block
MT SIBOLA
53° 49'
127° 15'
-N-

Figure 23

GEOLOGY OF THE BERGETTE COPPER-MOLYBDENUM PROSPECT

SILT ANALYSES

No	Cu ppm	Mo ppm	Mn ppm	Fe per cent
1	250	56.0	576	8.6
2	375	100.0	45	6.5
3	350	65.0	270	5.0
4	150	20.0	110	5.1
5	250	17.0	1800	3.7
6	50	1.2	800	4.2
7	151	1.0	1050	4.1
8	50	15.0	670	6.7

Geology by B.N. Church 1971

Topographic base provided by Gränges Exploration A.B.

CON (No. 112, Fig. D)

LOCATION: Lat. 53° 56.3′ Long. 127° 02′ (93E/14E)
OMINECA M.D. Fifty miles south of Smithers, one-half mile south of Hill-Tout Lake at an elevation of 3,000 feet.
CLAIMS: CON 1 to 12, 1 Fraction.
ACCESS: By floatplane from Smithers.
OWNER: PASSPORT MINES LTD., 642 Clark Drive, Vancouver 6.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs in minor amount in quartz monzonite porphyry and in altered volcanic rocks of the Hazleton Group.
WORK DONE: A geochemical survey covering 9 line-miles and 50 feet of trenching were done.
REFERENCE: Assessment Report 3345.

SIB (No. 68, Fig. D)

LOCATION: Lat. 53° 47.9′ Long. 127° 06.5′ (93E/14E)
OMINECA M.D. Sixty miles south-southwest of Houston and 3 miles west of the south end of Twinkle Lake.
CLAIMS: SIB 1 to 8.
ACCESS: Via the Morice River and Tahtsa Lake forest development road from Houston.
OPERATOR: QUINTANA MINERALS CORPORATION, 1215 Two Bentall Centre, Vancouver 1.
DESCRIPTION: The claims are underlain by andesite, rhyolite, and volcanic, clastic, and pyroclastic rocks of the Hazelton Group.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet and geochemical soil and silt survey, 4 line-miles covering all claims.
REFERENCE: Assessment Report 3259.

BERGETTE (No. 154, Fig. D)

By B. N. Church

LOCATION: Lat. 53° 48.2′ Long. 127° 16.9′ (93E/14E)
OMINECA M.D. At 5,800 feet elevation 3 miles north of Mount Sweeney and 3.5 miles west-northwest of Sibola Peak, approximately 45 miles southwest of Houston.
CLAIMS: BERGETTE 1 to 14, BS 1 to 10, BS 1 to 3 Fractions, BF 1 to 6, 19 to 22, FG 1 to 74, 79 to 104, LK 1 to 60.
ACCESS: By Tahtsa forest access road from Houston, 65 miles.
OWNER: G.O.M. Stewart.
OPERATORS: FRONTIER EXPLORATION LIMITED, 642 Clark Drive, Vancouver 6 and GRANGES EXPLORATION AB, 1060, 1055 West Hastings Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION:

INTRODUCTION: The Bergette property is located at the north edge of the Sibola stock near Tahtsa Lake, in an area of current exploration and recent mining activity.

This report is largely based on the results of two weeks of field work by the writer, which included regional and detailed geology and a pace and compass survey of trenches and roads.

HISTORY: The first recorded prospecting in the area was in 1913 when placer gold and small gold-bearing quartz veins were found in the Sibola Peak area. Two years later lead-zinc veins were discovered in the same general region on the south slope of Mount Sweeney. These were subsequently developed to what is now known as the Emerald Glacier mine.

In the years 1961 to 1964 the region was actively prospected by Kennco Explorations, (Western) Limited, and several low-grade copper-molybdenum deposits with potentially large tonnage were located. They are known as the Berg prospect in the Tahtsa Range, the Len prospect on Huckleberry Mountain, and the Whit prospect on Whiting Creek.

The Bergette prospect, formerly Kennco's Sibola property, was restaked by G.O.M. Stewart in July 1970. This property is 4 miles northwest of the Whit prospect and 6 miles east of the Berg. Apparently Kennco geologists were attracted to the area, as they had been at the Berg, by anomalously high molybdenum and copper concentrations in silt samples taken from local streams. A follow-up investigation led to the discovery of scattered copper and molybdenum-bearing zones in a large gossan located high on the ridges immediately west and northwest of Mount Sibola. After some additional investigation over a period of several years, Kennco released the property. This was probably due to excessively low grades obtained from surface samples and the dispersed nature of the mineralization.

Granges Exploration AB obtained an option agreement on the Bergette property in 1971 from G.O.M. Stewart and Frontier Exploration Limited and completed the initial phase of an exploration programme which included a geochemical survey, trenching, and a diamond-drill programme. The attention was focused mainly on a jarositic capping in the south-central part of the large gossan. Results were sufficiently encouraging that additional exploration is now planned for 1972.

PHYSIOGRAPHY: The map-area occupies a strategic geographic position near the centre of the Sibola Range between the Coast Mountains and the Nechako Plateau at the junction of the Skeena, Fraser, and Kemano drainage divides.

The Sibola Range is dome shaped in outline and characteristically radially dissected by broad, deeply re-entrant glacially carved valleys. Slopes rise from a base level of 4,000 feet, where the main access road enters the northwest corner of the map-area, to approximately 7,350 feet elevation at the summit of Mount Sibola, a few miles to the southeast. The serrated north spur of Mount Sweeney, visible in the extreme south part of the map-area, is an eroded buttress of a once continuous upland surface. Remnants of this surface are still preserved at elevations above 6,000 feet on the upper north slope of Mount Sibola and the hill to the northwest. Other lower ridges and hills in the area are generally rounded and were evidently overtopped by Pleistocene ice sheets. A few vestigial glaciers are found on some of the cirqued headwalls of the main valleys.

In spite of the pronounced topographic relief, the large areas of bedrock exposure are confined to steep slopes, ridges, and gullies. The main valleys are fringed by talus fans and floored by stream gravels in the lower sections and hummocky morainal deposits in the upper parts. The upper slopes and hill tops are invariably enveloped in felsenmeer. In places this broken rock has been mobilized by frost action and solifluction forming down-hill stripe patterns and parapets composed of sorted mud and rubble. Generally this movement of debris has hindered geological interpretation and complicated geochemical sampling.

The area experiences arctic conditions high on the ridges with strong unpredictable winds and severe frost during many months of the year. Water is generally in fair supply and good stands of pine, fir, and spruce can be found below 4,500 feet elevation.

GENERAL GEOLOGY: Mapping by Hedley, 1935, and later by Duffell, 1947 to 1952, shows that the Sibola Range is underlain by Hazelton volcanic and sedimentary rocks with a granitic stock covering an area of about 20 square miles occupying the central core of the range.

Bedded Rocks: Two main stratigraphic divisions of the Hazelton Group are recognized in the map-area: a lower sedimentary and an upper volcanic assemblage (Fig. 23).

The sedimentary unit is best exposed on the bluffs near the west boundary of the map-area. These beds are about 2,000 feet thick and comprise an assortment of impure sandstone, some argillite, and minor chert and quartzite. Near the northwest corner of the map-area the rocks occur on the west limb of a northerly trending syncline and consist mainly of brown, flaggy sandstones. Thin sections of this rock show an average of about 35 per cent quartz and chert, 5 per cent feldspar, 40 per cent rock fragments and mica, and 20 per cent clay and fine micaceous matrix. The unit is thermally metamorphosed to hornfels near the Sibola stock in the west-central part of the map-area. The hornfels is commonly dark coloured, brittle, locally pyritiferous, and rich in fine-grained biotite.

The volcanic rocks underlie much of the north-central area. They are largely massive, light-coloured acid pyroclastic rocks with a few intercalated chert and argillite seams. Arc fusion determination of a suite of representative samples indicates most are dacite with minor andesite and rhyolite. These rocks are generally very fine grained, however, plagioclase microphenocrysts 1 to 3 millimetres long are visible in some breccias and lavas. X-ray analysis performed on 10 selected samples shows a range of 16 to 42 per cent quartz, most of this being submicroscopic size. Epidote is an important secondary mineral, but is prevalent only in the most basic rocks.

A comparison of quartz content and refractive indices of Hazelton volcanic rocks from the Sibola area and Grouse Mountain near Houston shows that they are on the same acid-line trend (Fig. 24).

Source for some of the Hazelton volcanic rocks appears to be a volcanic centre located near the north boundary of the map-area. Here the sedimentary rocks are intruded and altered by purple dacitic andesite lava and tuff. The relative stratigraphic position of the extrusive phase of this rock within the local Hazelton volcanic succession was not determined.

Intrusive Igneous Rocks: Aside from the feeders to the Hazelton volcanic rocks, which are considered to be part of the volcanic regime, the salient intrusions in the area comprise the Sibola granitic stock with accompanying dykes and a small feldspar porphyry body located near the zone of mineralization.*

The Sibola stock underlies most of the southeast half of the map-area, including the summit ridge of Mount Sibola and the north spur of Mount Sweeney. The main phase is relatively fresh, medium grained, and pinkish grey coloured. Modal analysis of 16 samples shows the following average mineral composition:

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* K-Ar analysis of biotite gives 76.7 ± 2.5 million years (N. C. Carter, *U.B.C.*).

	Per Cent
Quartz	21.0
Orthoclase	20.3
Plagioclase (An_{35})	46.4
Biotite	3.3
Hornblende	7.1
Magnetite	1.9

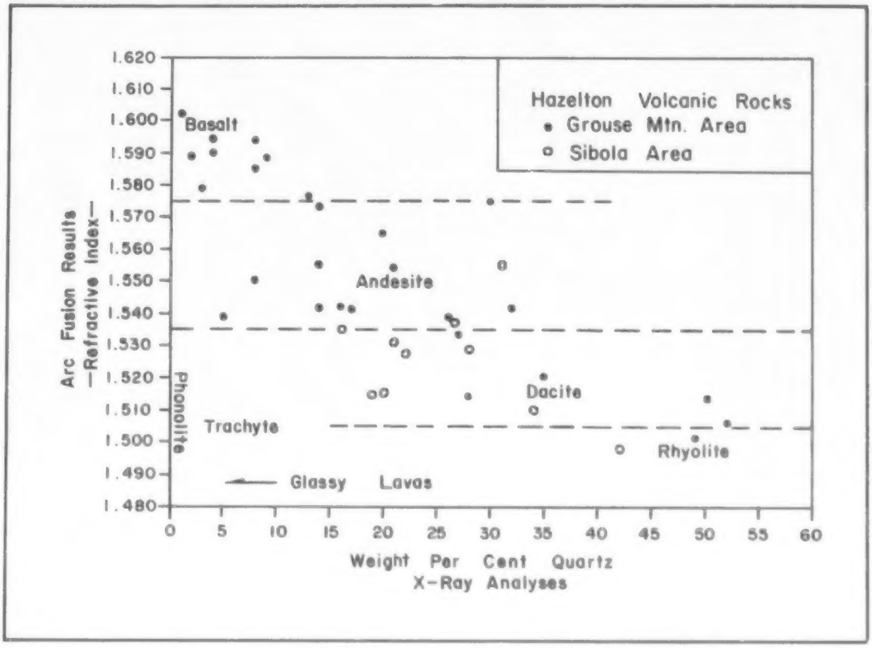


Figure 24. Comparison of the refractive index-quartz variation of Hazelton volcanic rocks in the Sibola Peak and Grouse Mountain areas.

Texturally, the rock consists of a framework of randomly arranged stout plagioclase plates, 4 to 6 millimetres long, with smaller interstitial anhedral solitary quartz grains and patchy areas with quartz-orthoclase graphic intergrowths. Light green hornblende, the predominant ferromagnesian mineral, commonly occurs as ragged poikilitic growths mixed with quartz, biotite, magnetite, and some apatite.

The so-called 'camp phase' of the Sibola stock is found adjacent to the Hazelton strata forming the west margin of the intrusion. Commonly the rock is finer grained than the main phase and contains slightly more quartz and biotite and less orthoclase. Also, the rock is generally altered, the feldspar being locally sericitized and the biotite and hornblende largely replaced by chlorite. The average composition of this rock, based on five modal analyses, is as follows:

	Per Cent
Quartz	27.5
Orthoclase	5.8
Plagioclase	53.2
Biotite, hornblende, and chlorite	12.5
Pyrite and magnetite	1.0

The feldspar porphyry intrusion is located at the geographic centre of the map-area where it forms a local embayment in the Sibola stock. The origin of this body is uncertain as it could be a late differentiate of the Sibola granite or simply a separate younger intrusion. Distinctively the rock contains larger plagioclase phenocrysts, some of which are as much as 2 centimetres long. These phenocrysts and many smaller ones are free floating, together with a few quartz and biotite subhedra, in a matrix largely composed of interlocking fine or medium-grained quartz, orthoclase, and plagioclase. Poikilitic hornblende, biotite, and small magnetite grains are scattered sparingly throughout the rock. Modal analysis of eight selected samples of this rock gives the following average composition:

	Per Cent
Quartz	29.8
Orthoclase	21.3
Plagioclase (Zoned An_{25-35})	36.9
Biotite	4.8
Hornblende	6.2
Magnetite	1.0

Offshoot dykes cutting or leading from this intrusion are thought to be late differentiates. They are commonly quartz-feldspar porphyries with orthoclase phenocrysts and contain pyrite-bearing amygdales.

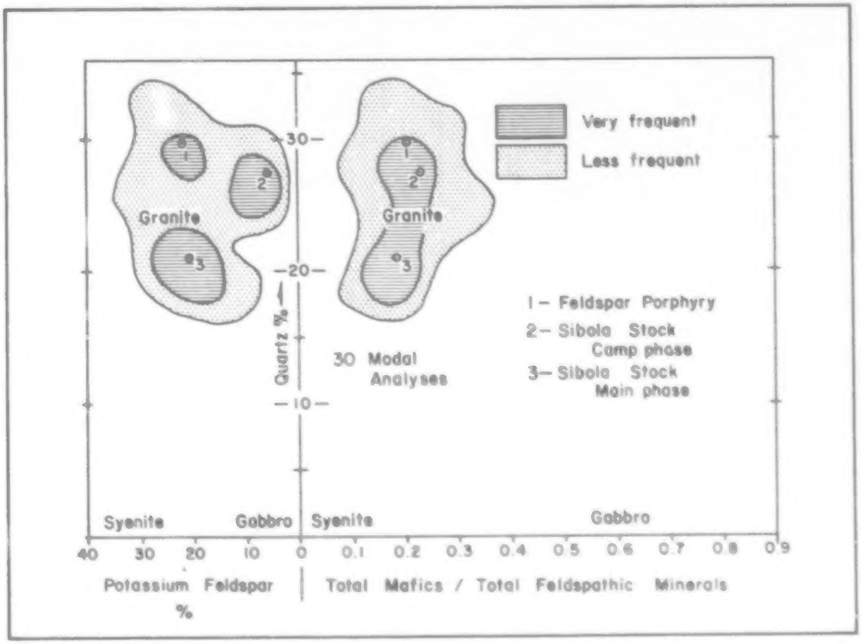


Figure 25. The modal composition variation of the main igneous intrusions in the Sibola Peak area.

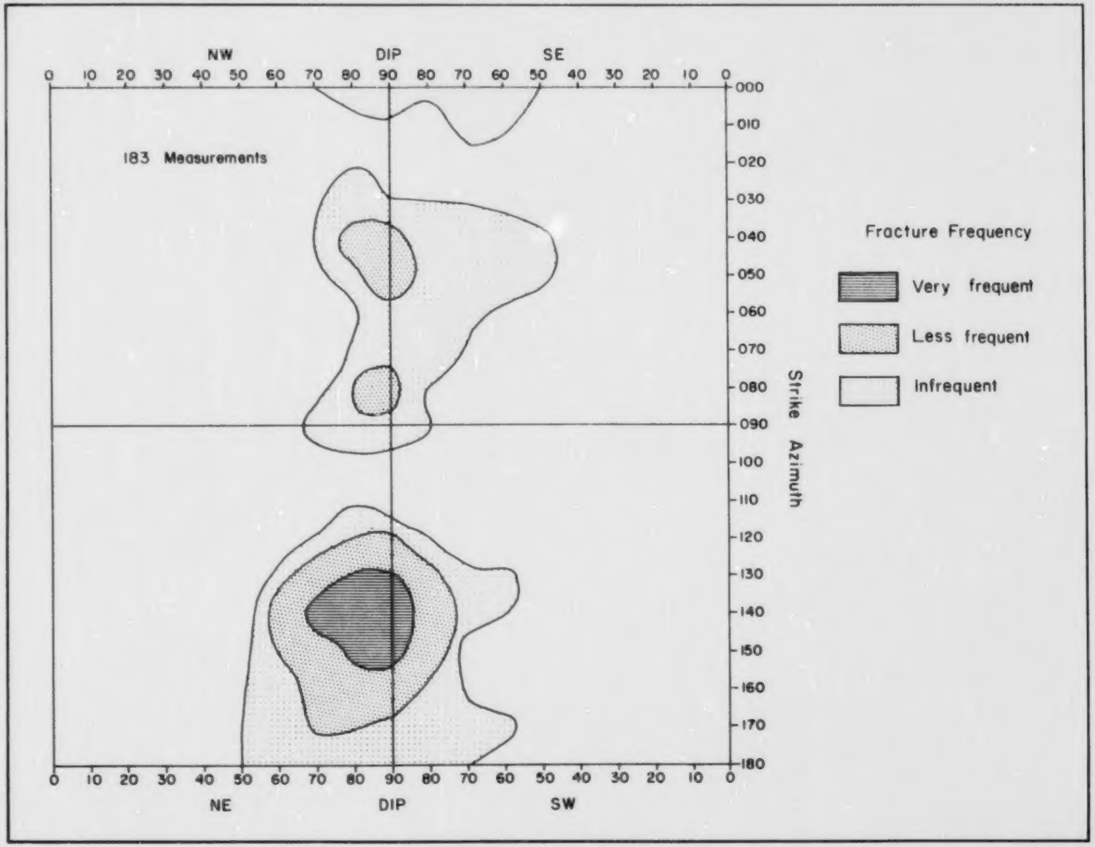
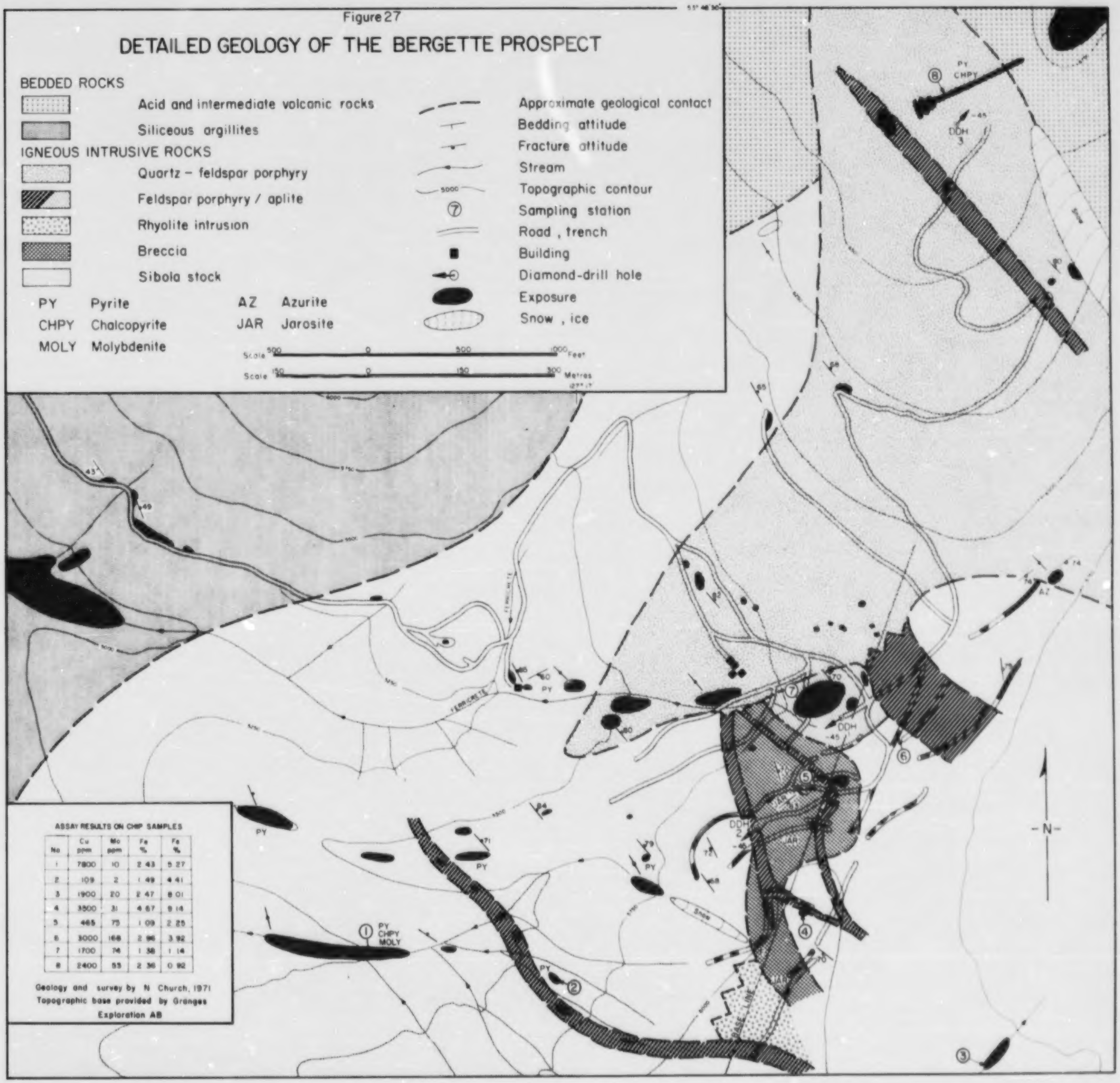


Figure 26. Fracture frequency plot for the Sibola Peak area.

Figure 27

DETAILED GEOLOGY OF THE BERGETTE PROSPECT


BEDDED ROCKS
Acid and intermediate volcanic rocks
Siliceous argillites
IGNEOUS INTRUSIVE ROCKS
Quartz – feldspar porphyry
Feldspar porphyry / aplite
Rhyolite intrusion
Breccia
Sibola stock
PY Pyrite
CHPY Chalcopyrite
MOLY Molybdenite
AZ Azurite
JAR Jarosite
Approximate geological contact
Bedding attitude
Fracture attitude
Stream
Topographic contour
5000
Sampling station
Road , trench
Building
Diamond-drill hole
Exposure
Snow , ice
Scale 500 0 500 1000 Feet
Scale 150 0 150 300 Metres
DDH 3
DDH 2
DDH
-45
TERRICRETE
BASE LINE
Snow
AZ
JAR
-N-

ASSAY RESULTS ON CHIP SAMPLES

No	Cu ppm	Mo ppm	Fe %	Fe %
1	7800	10	2.43	5.27
2	109	2	1.49	4.41
3	1900	20	2.47	8.01
4	3500	31	4.67	9.14
5	465	75	1.09	2.25
6	3000	168	2.96	3.92
7	1700	74	1.38	1.14
8	2400	55	2.36	0.92

Geology and survey by N Church, 1971
Topographic base provided by Granges Exploration AB

The composition variation of the main intrusions is shown on Figure 25. It is apparent that the Sibola stock, both the main phase and 'camp phase,' and the feldspar porphyry all belong to the granite clan of igneous rocks. The differences are mainly textural, as described above. Mineralogically, quartz is relatively abundant in the feldspar porphyry and the 'camp phase,' and orthoclase is enriched in the feldspar porphyry and the main phase of the Sibola stock. All these rock types show a predominance of hornblende over biotite, and the ratio of total ferromagnesians to total feldspathic minerals is similar. The writer believes that the intrusions have sufficient petrographic likeness that they may indeed have all been derived from the same parental magma. The mineral and textural differences may be explained by fractional crystallization or perhaps by the local thermal and chemical reaction between wallrocks and magma.

Structure: Regional mapping shows that the Hazelton strata are gently warped into northwesterly trending folds. In the Sibola area this trend has been apparently deflected by the emplacement of the Sibola stock. A syncline entering the map-area from the northwest appears to be flattened and uparched near the intrusion.

Fracturing of the main igneous intrusions and adjacent country rock has proved important in controlling dyke emplacement and local faults. The results of a statistical study of minor fractures in the Bergette area is shown on Figure 26. The main fracture direction, striking approximately 145 degrees and dipping 80 degrees northeast, is subparallel to the dyke offshoots of the Sibola stock which have been injected into the Hazelton rocks in the northwest part of the map-area. This main fracture direction is also subparallel to the northeast contact of the feldspar porphyry body, a known fault contact, and subparallel to a number of topographic lineaments traversing the map-area.

MINERALIZATION: The Bergette has been referred to as the 'Pseudo Berg' by some geologists because of a peculiar geomorphological setting similar to that found at the Berg property, that is, near the centre of the gossan zone, at an elevation between 5,000 and 6,000 feet, an erosional amphitheatre is incised laterally into the main ridge, with a low centrally located spur projecting directly outward from the headwall. Unlike the Berg, however, the Bergette gossan zone is exceptionally large covering roughly 2.5 square miles. The outline of the gossan is somewhat amoeboid shaped and elongated northwesterly subparallel to the main fracture direction prevalent in the area. The northerly section of the gossan covers Hazelton metavolcanic and metasedimentary rocks and appears to be largely the result of weathering of disseminated pyrite in a zone heavily intruded by dykes. The central and southeasterly part of the gossan is underlain by the pyritiferous 'camp phase' and part of the main phase of the Sibola stock.

Two main types of mineralization are being tested presently; these are the occurrence of sulphides in a breccia zone in the 'camp phase' of the Sibola stock, and sulphides more generally dispersed such as in fractures and as disseminations beyond the limits of the breccia zone (Fig. 27). There seems to be little interest in the zone of hornfelsed metasedimentary and metavolcanic rocks at the contact of the stock.

Mineralized Breccia: The breccia zone is tadpole shaped, roughly 1,500 feet long extending from the bulbous north end, in contact with some aplite and the feldspar porphyry intrusion, to a narrow recurved tail adjacent a small rhyolite intrusion on the south. The origin of the breccia is uncertain but it may have been formed by escaping volatiles or simply expansion of the host rocks to accommodate the feldspar porphyry body. The zone is cut by dykes which are believed to be late-stage offshoots of the feldspar porphyry.

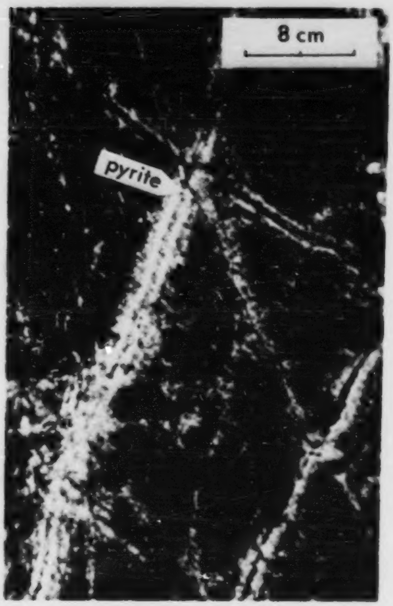


Plate IVA. Bergette prospect, reticulate fractures with bleached walls and pyrite and chalcopyrite filling.

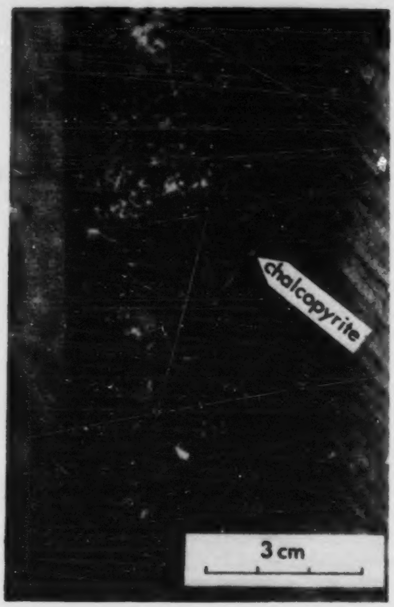


Plate IVB. Bergette prospect, core sample of brecciated 'camp phase' of Sibola stock with chalcopyrite in angular cavity.

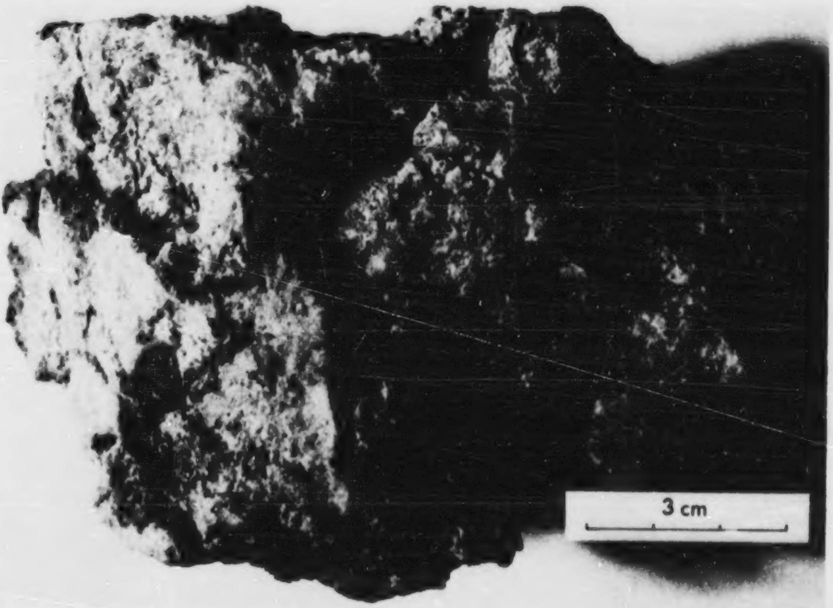


Plate IVC. Bergette prospect, jarosite and limonite encrustations on breccia.

X-RAY ANALYSIS

1*		2		3	
I	dÅ	I	dÅ	I	dÅ
10	8.90	8	8.85	7	9.02
....		1	6.66	....	
4	5.37	5	5.37	....	
....		....		3	5.310
6	4.66	8	4.67	6	4.650
5	4.29	6	4.31	1	4.290
10	4.055	10	4.035	10	4.035
4	3.730	5	3.740	2	3.740
5	3.400	7	3.400	5	3.400
5	3.195	7	3.185	4	3.170
8	3.013	....		7	3.020
....		9	2.930	....	
....		....		2	2.788
3	2.766	4	2.755	....	
1	2.722	....		....	
3	2.580	4	2.578	2	2.578
....		....		1	2.482
2	2.464	3	2.469	....	
....		1	2.344	....	
....		2	2.242	....	
....		....		1	2.067
....		5	2.044	1	2.040
....		2	1.775	....	
....		1	1.666	....	
....		4	1.593	4	1.600
....		3	1.554	4	1.561

1 – Stilbite from the Bergette prospect, Sibola area; analysis by N. Colvin, British Columbia Department of Mines and Petroleum Resources.

2 – Stilbite from the north shore of Victoria Harbour; analysis by N. Colvin, British Columbia Department of Mines and Petroleum Resources.

3 – Stilbite, personal collection, N. Church; analysis by N. Church, British Columbia Department of Mines and Petroleum Resources.

*Semiquantitative spectrographic analysis on No. 1:

Si – more than 10 per cent
Al – more than 10 per cent
Ca – 2 per cent
Na – 0.4 per cent
Fe – 0.4 per cent

*NOTE:–This stilbite is an unusual iron-bearing variety mistakenly identified in the field for prehnite (a calcium-aluminum silicate with a higher pressure stability range). In general it seems worthwhile to record the composition and X-ray parameters of zeolites where possible because the temperatures and pressures of formation of these minerals overlap with the ore-forming sulphides.

The exact nature of the breccia is difficult to ascertain at surface because of a thick yellow jarositic alteration capping. However, examination of diamond-drill core shows that the breccia passes from simply crackled rock to areas where sharp angular fragments are completely dislocated. The cracks are commonly healed with gypsum, pyrite, some molybdenite-bearing quartz, and fluorite. Vugs are abundant measuring from one-quarter inch to 1 inch or larger in diameter (Plates IV B and C). These are partly filled or lined with a diverse assemblage of minerals including carbonate, pyrite, chalcopyrite, magnetite, epidote, secondary biotite, chalcocite ?, and less commonly zeolites such as chabazite ? and stilbite (*see* the accompanying table).

According to a company report the jarosite content in the leached gossaniferous capping on the breccia zone varies from 60 to 90 per cent with the copper content ranging from 230 ppm to at least 500 ppm; analysis of a grab sample collected by the writer shows 465 ppm copper (station No. 5, Fig. 27). Intersection of the primary mineralization in drill hole No. 1 below the leached cap reportedly averages 0.36 per cent copper over 130 feet.

Mineralized Fractures: The most widespread mineralization, responsible for much of the gossan in the area, is undoubtedly associated with the highly fractured, but unbrecciated, west marginal section of the Sibola intrusion. Typically, pyrite, chalcopyrite, and, to lesser extent, molybdenite occur as thin fracture fillings with adularia and quartz. The bleached sericitized walls of the fractures commonly have fine granular pyrite disseminations with minor chalcopyrite and some secondary biotite. Although the mineralized fractures are commonly reticulate, southeasterly trending joint sets are dominant as described previously (Plate IVA). In places the main mineralized section may be several hundred feet across consisting in detail of pyrite and chalcopyrite-bearing fracture zones measuring a few feet to several feet wide alternating with panels of relatively sulphide-free rock tens of feet wide. A composite grab sample from such a zone assayed 0.24 per cent copper (station No. 8, Fig. 27). (In the same area diamond-drill hole No. 3 reportedly cut 50 feet averaging 0.64 per cent copper.) Elsewhere, chalcopyrite occurs with pyrite in seams of solid sulphide a few inches wide or zones of intense disseminated sulphides measuring several feet wide. Grab samples taken by the writer from four localities average 0.4 per cent copper (station Nos. 1, 3, 4, and 6, Fig. 27). Diamond-drill hole No. 2, a cross-section of numerous small seams and zones of disseminated sulphides, reportedly averaged 0.15 per cent copper over 687 feet.

Silt Geochemistry: A total of eight silt samples were taken for geochemical study from streams draining the Bergette area (Fig. 23). Sample No. 6 collected at the ford on the Bergette access road, is relatively remote from the mineralized zone and, except for manganese which is high at 800 ppm, contains what is thought to be background levels of copper, 50 ppm; molybdenum, 1.2 ppm; and iron, 4.2 per cent. The coincidence of high copper, 151 ppm, and manganese, 1,050 ppm, in sample No. 7, which was collected at a ford on the main Berg road several miles north of the Bergette showings, is possibly due to the presence of metal adsorbing manganese oxide. Silt samples Nos. 1 to 5 inclusive, from three tributary streams immediately downstream from the Bergette showings, have a high average concentration of copper, 275 ppm and molybdenum, 51.6 ppm. The two westerly flowing tributaries in this area are floored by thick ferricrete deposits along their upper courses and silt analysis consequently show relatively high iron values ranging up to 8.6 per cent. Comparatively low manganese content of the samples, ranging from 45 ppm to 576 ppm, is probably the result of weathering pyrite in the area forming sulphurous waters. It is known that manganese dissolves more readily than iron in the presence of sulphates, also manganous compounds are generally more stable in solution than ferrous compounds.

WORK DONE: Frontier Exploration Limited: surface geological mapping, 1 inch equals 400 feet covering BS 1-5 and BF 1-4, 6 claims. Granges Exploration AB: surface geological mapping, 1 inch equals 400 feet covering Bergette 1-5, 14; geochemical soil survey, 1,171 samples covering Bergette 1-5, 9, 14, BS 1-6, 8, 9, BF 2, 4, 6, 20, and BS 1-3 Fractions; magnetomter survey, 26.2 line-miles covering same claims as geochemical soil survey; road construction, approximately 4.5 miles from Berg access road to property; trenching, 2,900 feet on Bergette 1, 4 and BS 2, 4, 5, 3 Fraction; surface diamond drilling, six holes totalling 4,011 feet on BS 2, 4 and Bergette 4, 5 claims.

REFERENCES: Duffell, S., 1959, *Geol. Surv., Canada,* Mem. 299; Hedley, M. S., 1935, *Geol. Surv., Canada,* Map 367A; Sutherland Brown, A., *Minister of Mines, B.C.,* Ann. Repts., 1966, pp. 105-111; 1967, pp. 110-113.

BERG (No. 83, Fig. D)

LOCATION: Lat. 53° 49' Long. 127° 25.5' (93E/14W)
OMINECA M.D. At approximately 5,200 feet elevation 55 miles southwest of Houston, lying about 6 miles south of Kid Price Lake.
CLAIMS: BERG, totalling 98.
ACCESS: By road from Houston, 80 miles.
OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Pyrite, chalcopyrite, and molybdenite occur as fracture fillings and disseminations in a quartz monzonite porphyry stock and surrounding hornfelsed volcanic rocks.
WORK DONE: Surface diamond drilling, three holes totalling 2,088 feet on Berg 17 and 18.
REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1966, pp. 105-111.

SET, LOST, ICE (No. 183, Fig. D)

LOCATION: Lat. 53° 49.5' Long. 127° 26' (93E/14W)
OMINECA M.D. At approximately 6,000 feet elevation halfway between Tahtsa and Kidprice Lakes, 65 miles south of Smithers.
CLAIMS: SET 12 to 16, LOST 1 to 4, ICE 1 to 5, IT, etc., totalling 34.
ACCESS: By road from Houston, 73 miles.
OWNER: SIERRA EMPIRE MINES LTD., 846 West Hastings Street, Vancouver 1.
METALS: Silver, copper, molybdenum, lead, zinc.
DESCRIPTION: Galena, sphalerite, and pyrite occur in veins and covellite, chalcopyrite, and pyrite occur disseminated in diorite and altered Hazelton Group rocks near a diorite intrusion.
WORK DONE: Surface diamond drilling, eight holes totalling 5,017 feet on Lost 1-4.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 8.

IT, TUT, CAP (No. 69, Fig. D)

LOCATION: Lat. 53° 15'-22' Long. 125° 10'-30' (93F/3, 6)
OMINECA M.D. Approximately 120 miles west-southwest of Prince George, west of Green Lake at an elevation of 3,500 feet.

CLAIMS: T, TUT, CAP, totalling 1,411.

ACCESS: By floatplane from Prince George, 120 miles.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, 555 Burrard Street, Vancouver 1.

METALS: Molybdenum, copper.

WORK DONE: Topography mapped; geochemical soil survey, 384 samples collected on Cap 149-158, 169 to 178; induced polarization survey, 68.3 line-miles covering Cap, T, Tut.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 110; Assessment Reports 3255, 3256.

WT (No. 78, Fig. D)

LOCATION: Lat. 53° 28.6' Long. 125° 32' (93F/5E)
OMINECA M.D. Fifty-three air miles south of Burns Lake, 3 miles north of Chelaslie Arm at elevations of 3,500 to 4,000 feet.

CLAIMS: WT 1 to 42, 1 to 12 Fractions.

ACCESS: By air from Smithers, 108 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite and molybdenite occur as fracture fillings in monzonite and quartz monzonites in contact with Takla Group volcanic rocks.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet; geochemical silt and soil survey, approximately 730 samples; magnetometer survey, 14.2 line-miles; induced polarization survey, 4 line-miles; electromagnetic survey, 3.8 line-miles covering WT 1-16 and WT 1-6 Fractions.

REFERENCE: Assessment Report 3254.

GODOT (No. 21, Fig. D)

LOCATION: Lat. 53° 23'-26' Long. 125° 37'-40' (93F/5E)
OMINECA M.D. Near Tetachuck River at elevations of 3,200 to 4,379 feet, 115 air miles southeast of Smithers.

CLAIMS: GODOT 1 to 56, 1 to 24 Fractions.

ACCESS: By air from Smithers, 112 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite and molybdenite are found as disseminations within granodiorite in contact with Takla Group volcanic rocks.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 1,000 feet covering Godot 1-5, 13-15, 25-36, 44-46 and 1-6, 10-12, 13-16, and 19 Fractions; geochemical soil and silt survey, approximately 900 samples covering Godot 15-26, 31-38, 49, 50, 53-54 and 7-10, 14-16, 21-23 Fractions; magnetometer survey, 17.39 line-miles and electromagnetic survey, 5.7 line-miles covering Godot 15-26, 21-33, 49, 50, 53, 54 and 7-10, 14-16, 21, 23 Fractions.

REFERENCE: Assessment Report 3173.

C, Z (No. 43, Fig. D)

LOCATION: Lat. 53° 21' Long. 124° 30' (93F/7E, 8W)
OMINECA M.D. At west end of Chutanli Lake at an elevation of 4,300 feet, 70 miles southwest of Prince George.

CLAIMS: C 1 to 126, 131 to 140, 145 to 180; Z 1 to 56.

ACCESS: By floatplane from Burns Lake.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, 555 Burrard Street, Vancouver 1.

METALS: Molybdenum, copper.

DESCRIPTION: Molybdenite, chalcopyrite, and pyrite occur in siliceous, kaolinized, and chloritized volcanic rocks.

WORK DONE: Airborne magnetometer survey, 122 square miles; diamond drilling, four holes totalling 840 feet on C 109, 125 and Z 36, 38.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 111; Assessment Report 3050.

TAT (No. 22, Fig. D)

LOCATION: Lat. 53° 29'-31' Long. 124° 11'-13' (93F/8E, 9E)
OMINECA M.D. At elevations of 3,000 to 4,300 feet on the north slope of Tatuk Hill, approximately 35 miles south of Vanderhoof.

CLAIMS: TAT 1 to 28.

ACCESS: By helicopter from Kenney Dam.

OWNER: AMERICAN SMELTING AND REFINING COMPANY, 504, 535 Thurlow Street, Vancouver 5.

WORK DONE: Geological mapping and a geochemical soil survey were carried out during 1970.

REFERENCE: Assessment Report 2886.

H (No. 143, Fig. D)

LOCATION: Lat. 53° 41.6'-44' Long. 124° 28'-32' (93F/9W, 10E)
OMINECA M.D. Crystal Lake area 4 miles east of Mount Hobson, approximately 28 miles southwest of Vanderhoof.

CLAIMS: H 1 to 106.

ACCESS: By road from Vanderhoof, approximately 38 miles.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, 555 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: The host rock is mainly diorite with occasional granodiorite and granite phases.

WORK DONE: Topography mapped; geochemical soil survey, approximately 1,533 samples covering all claims.

L (No. 144, Fig. D)

LOCATION: Lat. 53° 56.8′ Long. 124° 42′ (93F/15E)
OMINECA M.D. Immediately west of Limit Lake, 10 miles southeast of Fraser Lake.

CLAIMS: L 1 to 18.

ACCESS: By road from Fraser Lake, approximately 15 miles.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, 555 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The host rock is medium-grained granodiorite.

WORK DONE: Topography mapped; geochemical soil survey, approximately 315 samples covering all claims.

E, O (No. 145, Fig. D)

LOCATION: Lat. 53° 57′-58′ Long. 124° 46.3′-53′ (93F/15W)
OMINECA M.D. Approximately 7 miles south of the community of Fraser Lake, 2 miles south of Nithi Mountain.

CLAIMS: E 1 to 48 Fractions, O 1 to 75 Fractions.

ACCESS: By road from Fraser Lake, approximately 7 miles.

OWNER: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, 555 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Topography mapped; geochemical soil survey, approximately 3,144 samples covering all claims.

PRINCE GEORGE 93G

DUCK (No. 134, Fig. D)

LOCATION: Lat. 53° 09.5′-11.4′ Long. 122° 19′-23′ (93G/1W)
CARIBOO M.D. At approximately 2,800 feet elevation on Ahbau Creek, 20 miles north of Quesnel.

CLAIMS: DUCK 1 to 6, 11 to 54.

ACCESS: By road from Quesnel, 20 miles.

OWNER: DENISON MINES LIMITED, 1705, 777 Hornby Street, Vancouver 1.

METALS: Silver, copper.

DESCRIPTION: An assemblage of volcanic and sedimentary rocks of Upper Triassic and Lower Jurassic age is intruded by a plug of probably Jurassic age and acid composition. The intrusive is locally epidotized and can contain up to 10 per cent magnetite.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet; geochemical soil survey, 101 samples; and magnetometer survey, 3.3 line-miles covering Duck 11-14.

REFERENCE: Assessment Report 3449.

THUNDER (No. 138, Fig. D)

LOCATION: Lat. 53° 11.8' Long. 122° 21.4' (93G/1W)
CARIBOO M.D. On Ahbau Creek, 18 miles north-northeast of Quesnel and 3 miles east of Cinema.

CLAIMS: THUNDER 1 to 34, 31A to 34A, 37 to 40, 47 to 52; KIM 1 and 2; MIKE 3 to 6; RAIN 1 to 20.

ACCESS: By road, 5 miles east from Highway 97 at Cinema.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METALS: Copper, silver, gold.

DESCRIPTION: The claims are underlain by a sequence of massive andesites intercalated with cherty sedimentary rocks and siliceous tuffs and breccias. Chalcopyrite and pyrrhotite occur in regular stockworks in fractured cherty rocks and as massive lenses with sphalerite, galena, and magnetite.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet; geochemical soil survey, approximately 20 line-miles; magnetometer survey, approximately 20 line-miles; electromagnetic survey, approximately 29 line-miles covering about 25 claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 161; Assessment Reports 2212, 3385.

DOR (No. 44, Fig. D)

LOCATION: Lat. 53° 11'-13.5' Long. 122° 52'-57' (93G/2W)
CARIBOO M.D. Twenty-one miles northwest of Quesnel near Blackwater Mountain, at elevations of 2,500 to 3,500 feet.

CLAIMS: DOR, JEAN, BLANC, MIKE, totalling 53.

ACCESS: Via Blackwater road from Quesnel.

OPERATOR: CHARLES BOITARD, 2245 West 13th Avenue, Vancouver 9.

DESCRIPTION: The claims are underlain by basalt of Oligocene age.

WORK DONE: Biogeochemical sampling and self-potential survey.

REFERENCE: Assessment Report 3174.

JO (No. 85, Fig. D)

LOCATION: Lat. 53° 20' Long. 122° 25.5' (93G/8W)
CARIBOO M.D. At approximately 3,400 feet elevation 1 mile west of Yardley Lake.

CLAIMS: JO, totalling 45.

ACCESS: By road from Hixon, 15 miles.

OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, 5, 465 Victoria Street, Kamloops.

METAL: Copper.
WORK DONE: Trenching, 300 feet on Jo 4 and 5.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 200.

ALICE (No. 137, Fig. D)

LOCATION: Lat. 53° 48.6′ Long. 123° 57.1′ (93G/13W)
CARIBOO M.D. At an elevation of 4,500 feet, 6,500 feet southeast from the summit of Sinkut Mountain, 18 miles south of Vanderhoof.
CLAIMS: ALICE 1 and 2.
ACCESS: From Vanderhoof by road and trail, 18 miles.
OWNER: J. M. ASHTON, 204, 2930 Spruce Street, Vancouver 9.
DESCRIPTION: The claims are underlain by serpentinized peridotite and serpentinite of probable Triassic age along a contact with grey limestone of the Cache Creek Group.
WORK DONE: A magnetometer survey was done during 1970.
REFERENCE: Assessment Report 3388.

MINOU (No. 23, Fig. D)

LOCATION: Lat. 53° 47′ Long. 122° 46′ (93G/15W)
CARIBOO M.D. At an elevation of 2,500 feet 10 miles south of Prince George, 2 miles west of the Fraser River.
CLAIMS: MINOU 1 to 28 (formerly WED).
ACCESS: By helicopter from Prince George.
OWNERS: K. E. KANIA and R. A. SAVIDGE, R.R. 3, Quesnel.
WORK DONE: Geochemical surveying and trenching were carried out during 1970.
REFERENCES: Assessment Reports 300, 3067.

McLEOD LAKE 93J

SAMSON, TIN, CAN (No. 127, Fig. D)

LOCATION: Lat. 54° 04′ Long. 122° 20′ (93J/1W)
CARIBOO M.D. At approximately 2,300 feet elevation 1.25 miles east of Giscome, 30 miles east-northeast of Prince George.
CLAIMS: SAMSON 1 to 36, TIN 1 to 14, CAN 1 to 40, JHG 1 to 10, ELSA Fraction.
ACCESS: By road from Giscome, three-quarters of a mile.
OWNER: CENTRAL B.C. EXPLORATION LTD., 1726 West 14th Avenue, Vancouver 9.
METALS: Silver, lead, zinc.
DESCRIPTION: Replacement in dolomites, limestones, and argillites near Precambrian gneiss and granite.
WORK DONE: Claims and surface workings mapped; surface geological mapping; geochemical soil survey covering Tin 8-11, Samson 6, 8, 15, 18-22, and JHG 1-10; road construction, 1 mile; trenching and stripping.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 198; Assessment Report 3043.

NORTH BEND, ADA (No. 128, Fig. D)

By A. D. Tidsbury

LOCATION: Lat. 54° 16′ Long. 122° 21′ (93J/8W)
CARIBOO M.D. At approximately 2,300 feet elevation on the north side of the Fraser River, 38 miles north-northeast of Prince George.

CLAIMS: NORTH BEND 1 to 10, ADA (Lot 8447), Mineral Leases M-27 and M-28 (NORTH BEND, YANKEE BOY Fraction, STANDARD, TURNBULL NO. 2, GRANITE, RIDER, PORTLAND, ALICE, GOLD COIN, INDEPENDENCE, MOUNT EDEN NOS. 1 to 3, NORTH POINT, YANKEE GIRL, YANKEE BOY, AVONLEA).

ACCESS: From the Hart highway via the Church Logging Company forest access road to the property.

OWNER: CENTRAL B.C. EXPLORATION LTD., 1726 West 14th Avenue, Vancouver 9.

METALS: Tungsten, silver.

WORK DONE: Approximately 675 feet of existing adit was slashed and new rail was laid and 300 feet of new drifting was completed and rail laid. Underground drilling, totalling 255 feet, was completed.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1935, p. C30; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 198.

ZAP (No. 86, Fig. D)

LOCATION: Lat. 54° 49′-50.5′ Long. 123° 31′-33′ (93J/13E)
CARIBOO M.D. Approximately 8 miles west of the northern tip of Carp Lake, 40 miles northeast of Fort St. James.

CLAIMS: ZAP 1 to 36.

ACCESS: By Carp Lake forest access road from Fort St. James, 60 miles.

OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

DESCRIPTION: Weak molybdenum anomalies occur in soils in the vicinity of quartz-feldspar porphyry dykes within the Wolverine Complex. The dykes are cut by a pyrite-bearing quartz vein stockwork.

WORK DONE: Surface geological mapping, 1 inch equals 300 feet and geochemical soil survey, 461 samples covering all claims; trenching, 40 feet on Zap 20 and 21.

REFERENCE: Assessment Report 3139.

ANT (No. 153, Fig. D)

LOCATION: Lat. 54° 48.3′-49.7′ Long. 123° 04′-06′ (93J/14E)
CARIBOO M.D. Eight miles east of Carp Lake and 7 miles west of the southern tip of McLeod Lake, approximately 70 miles northwest of Prince George.

CLAIMS: ANT 1 to 52.

ACCESS: By Highway 97 and secondary road from Prince George.

OPERATOR: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Quartz veinlets with chalcopyrite and pyrite occur in andesite and diorite outcrops on Ant 2.

WORK DONE: A geochemical soil survey was done on Ant 1-6, 11, and 13; 163 samples were collected.

REFERENCE: Assessment Report 3308.

FORT FRASER 93K

HAN, FIR (No. 90, Fig. D)

LOCATION: Lat. 54° 13.5'-16' Long. 124° 55' - 125° 04.7' (93K/2W, 3E, 6E, 7W)

OMINECA M.D. Between 2,700 and 4,400 feet elevation 12 miles north of Endako and bounded by Hanson, Jean, and Helene Lakes on the south, east, and north.

CLAIMS: HAN, FIR, JUS, LENA, SHOV, totalling 409.

ACCESS: By road and plane or helicopter from Endako, 12 miles.

OWNER: ENDAKO MINES LTD., Endako.

DESCRIPTION: Pink quartz monzonite of the Topley Intrusions intrudes older metamorphosed Cache Creek Group rocks. Intrusive rocks are, in turn, intruded by younger alaskitic and quartz-feldspar porphyry bodies and locally overlain by Tertiary volcanic rocks. No economic mineralization has been observed.

WORK DONE: Surface geological mapping, 1 inch equals one-quarter mile covering Han and Fir claims; geochemical soil and stream surveys, 2,919 samples covering all claims; ground magnetometer survey, 32 line-miles covering Han, Fir, Lena, and Shov claims; road construction, 8 miles (upper Shovel Creek); trenching, 600 feet on Fir 17 and Han 55 Fraction.

PAT (No. 87, Fig. D)

LOCATION: Lat. 54° 02'-05' Long. 125° 00'-07.9' (93K/3E)

OMINECA M.D. At approximately 3,000 feet elevation 4 miles south of Endako.

CLAIMS: PAT, DOLLY, MIST, totalling 71.

ACCESS: By road from Highway 16, 4 miles.

OWNER: ENDAKO MINES LTD., Endako.

METAL: Molybdenum.

DESCRIPTION: Most of the mineral claims are underlain by Endako quartz monzonite; the most southerly claims are presumed to be underlain by Casey alaskite. No economic mineralization has been encountered.

WORK DONE: Geochemical soil survey, 263 samples covering Dolly 3 and 4 Fractions, Mist 1-18, Pat 97, 99, 101, 103, 105, 107-114, and 116; percussion drilling, eight holes totalling 2,066 feet on Pat 4, 6, 55, 57, 58, and 69.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 114 (Ben); Assessment Reports 2904, 3196.

TOP (No. 1, Fig. D)

LOCATION: Lat. 54° 12.5'-14' Long. 125° 03'-06' (93K/3E)
OMINECA M.D. At elevations of 2,600 to 4,100 feet on the south side of Hanson Lake, 10 miles north of Endako.
CLAIMS: TOP 1 to 48.
ACCESS: By floatplane or helicopter from Burns Lake, 29 miles to the west.
OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.
WORK DONE: Geochemical soil sampling was done in 1970.
REFERENCE: Assessment Report 2931.

ENDAKO MINE (No. 89, Fig. D)

By W. G. Clarke

LOCATION: Lat. 54° 02' Long. 125° 06.5' (93K/3E)
OMINECA M.D. North of the east end of Francois Lake, 115 miles west of Prince George.
CLAIMS: Seven hundred and eight mineral claims, of which 22 are held under lease and an additional 74 claims and one lease are held by Denak Mines Ltd., a wholly owned subsidiary.
ACCESS: By paved road from Highway 16, 1 mile east of the village of Endako.
OWNER: ENDAKO MINES LTD., 1030 West Georgia Street, Vancouver 5; mine office, Endako.
METAL: Molybdenum (production shown in Table 1).
WORK DONE: Pit equipment replacements included two crawler tractors, one water truck, and smaller vehicles. Tailings impoundment facilities were expanded and a 600-cubic-foot flotation cell was installed in the mill.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 114, 115.

NU, ELK (No. 89, Fig. D)

LOCATION: Lat. 54° 03' Long. 125° 07' (93K/3E)
OMINECA M.D. At approximately 3,100 feet elevation 1.5 miles northwest of the Endako mine.
CLAIMS: NU, ELK, DIS, DAT, DEER, totalling 68.
ACCESS: By road from Highway 16, 6 miles.
OWNER: Denak Mines Ltd.
OPERATOR: ENDAKO MINES LTD., Endako.
METAL: Molybdenum.
DESCRIPTION: A stockwork of veins containing quartz, molybdenite, pyrite, and magnetite occurs in kaolinized and sericitized quartz monzonite. Aplite, quartz-feldspar porphyry, porphyritic granite, and basalt dykes intrude quartz monzonite.
WORK DONE: Geochemical soil survey, 150 samples covering Dat 1, 2, and 9 Fraction.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 115.

ROB, FRAN (No. 45, Fig. D)

LOCATION: Lat. 54° 00′-02′ Long. 125° 07′-09′ (93K/3E)
OMINECA M.D. At elevations of 3,400 to 3,600 feet on Francois Lake, approximately 3 miles west of Nithi River.

CLAIMS: ROB 1 to 22, six FRAN.

ACCESS: By road from Nithi River.

OWNER: UTICA MINES LTD., 2002, 1177 West Hastings Street, Vancouver 1.

WORK DONE: Line-cutting and geochemical sampling.

REFERENCES: Assessment Reports 3177, 3178.

MO, HRS (No. 46, Fig. D)

LOCATION: Lat. 54° 17′ Long. 125° 52′ (93K/5W)
OMINECA M.D. On the southwest side of Decker Lake, 6 miles northwest of Burns Lake.

CLAIMS: MO, HRS, GRE, DE, LARK, totalling 37.

ACCESS: By helicopter or four-wheel-drive vehicle road in summer from Burns Lake.

OWNER: DECKER LAKE MINES LIMITED, 1027, 510 West Hastings Street, Vancouver 2.

METALS: Copper, silver, lead, zinc.

WORK DONE: Line-cutting and electromagnetic surveying, 12 line-miles.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1930, p. 147 (Silver Glance, Golden Glory); Assessment Report 3065.

SNOWBIRD (No. 159, Fig. D)

LOCATION: Lat. 54° 27′ Long. 124° 30′ (93K/7W, 8E)
OMINECA M.D. At approximately 2,250 feet elevation on Kasaan Bay, southwest shore of Stuart Lake, 14 miles west of Fort St. James.

CLAIMS: SNOWBIRD, CAMPSITE, EBBA, GRAYBRID, TOPSIDE, SHAFT Fraction, BAY 1 and 2, 4 to 8, 11 to 22, and 23 and 24 Fractions.

ACCESS: By logging road from Fort St. James, 14 miles.

OPERATOR: CONSOLIDATED SHUNSBY MINES LIMITED, 418, 170 Bloor Street West, Toronto 5, Ont.

METALS: Antimony, gold.

DESCRIPTION: Quartz-carbonate zones and veins cut metasedimentary and metavolcanic rocks in a regional shear zone; stibnite, sparse pyrite, tetrahedrite, and gold are present.

WORK DONE: Surface workings mapped; surface geological mapping, 1 inch equals 50 feet covering Shaft Fraction, Campsite, and Snowbird; geochemical survey in 1970; experimental geochemical and magnetometer and electromagnetic surveys; trenching, 560 cubic yards on Topside and Shaft Fraction; stripping on Campsite, Snowbird, and Bay 15 and 16.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1963, p. 38; Assessment Report 3520.

SUNSHINE (No. 88, Fig. D)

LOCATION: Lat. 54° 30′ Long. 124° 08′ (93K/8E, 9E)
OMINECA M.D. At approximately 2,960 feet elevation 6 miles north of Fort St. James.

CLAIMS: SUNSHINE, AJAX, PRO, GO, HOPE, totalling 27 claims and fractions.

ACCESS: By road from Fort St. James, 6 miles.

OWNER: AJAX RESOURCES LIMITED (formerly Ajax Mercury Mines Limited), 685, 555 Burrard Street, Vancouver 1.

METAL: Mercury.

DESCRIPTION: Cinnabar occurs along a limestone-andesite contact.

WORK DONE: Geochemical soil survey, 500 samples covering Belle, Ajax, Sunshine, and Pro claims.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1965, p. 113; 1967, p. 118.

PINCHI LAKE MINE (No. 155, Fig. D)

By W. G. Clarke

LOCATION: Lat. 54° 37.5′ Long. 124° 24.5′ (93K/9W)
OMINECA M.D. On the north shore of Pinchi Lake.

CLAIMS: One hundred and sixty-nine.

ACCESS: By 29 miles of gravel road from Fort St. James.

OWNER: COMINCO LTD., Box 220, Fort St. James; mine office, Pinchi Lake.

METAL: Mercury.

WORK DONE: The plant operated at below rated capacity (850 tons per day) during the year. Underground mining is by a mechanized cut-and-fill method; production was obtained from two horizons. Open-pit mining was confined to the Main zone. Underground development–drift advance, 865 feet; crosscut advance, 251 feet; raise advance, 453 feet; total advance, 1,569 feet; diamond drilling, 18,491 feet; surface diamond drilling, 5,885 feet.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 117.

CIN (No. 91, Fig. D)

LOCATION: Lat. 54° 38.6′ Long. 124° 27.8′ (93K/9W)
OMINECA M.D. At approximately 2,250 feet elevation on the north side of Pinchi Lake, northwest and southeast of the Pinchi Lake mine.

CLAIMS: CIN, totalling 71 claims and fractions.

ACCESS: By road from Fort St. James, 20 miles.

OWNER: Highland Mercury Mines Limited.

OPERATOR: COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.

METAL: Mercury.

DESCRIPTION: Extensions of the Pinchi fault through metamorphosed sedimentary rocks of the Cache Creek Group carry cinnabar mineralization.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Cin 14; geochemical soil survey, 50 samples covering Cin claims; road construction, 1 mile (northwest of Pinchi Lake mine); trenching; surface diamond drilling, two holes totalling 1,006 feet on Cin 14.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 118.

BL (No. 92, Fig. D)

LOCATION: Lat. 54° 34′ Long. 125° 33′ (93K/12E)
OMINECA M.D. At approximately 4,000 feet elevation west of Butterfield Lake, 25 miles north of Burns Lake.
CLAIMS: BL 1 to 59.
ACCESS: By helicopter from Burns Lake, 25 miles.
OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.
METAL: Copper.
DESCRIPTION: Disseminated chalcopyrite is present in pyroxene porphyry and in coarse gabbroic pyroxenite. Chalcopyrite and malachite were noted in andesites near pyrite-bearing tuff beds.
WORK DONE: Surface diamond drilling, two holes totalling 165 feet on BL 22 and 57.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 118.

SMITHERS 93L

GAUL (No. 116, Fig. D)

LOCATION: Lat. 54° 10′ Long. 126° 16′ (93L/1W)
OMINECA M.D. At approximately 4,000 feet elevation 2 miles east of Goosly Lake, 30 miles southeast of Houston.
CLAIMS: GAUL 1 to 19 (formerly SAM).
ACCESS: By road from Houston, 30 miles.
OWNERS: Teck Corporation Ltd., Maverick Mountain Resources Limited, and Kennco Explorations, (Western) Limited.
OPERATOR: TECK CORPORATION LTD., 700, 1177 West Hastings Street, Vancouver 1.
METALS: Copper, silver.
WORK DONE: Geochemical soil survey, 500 samples covering Gaul 1-8; self-potential survey, 11 line-miles covering same claims; surface diamond drilling, 14 holes totalling 6,500 feet on Gaul 3-7.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 150 (Sam).

SG (No. 93, Fig. D)

LOCATION: Lat. 54° 11′ Long. 126° 16′ (93L/1W)
OMINECA M.D. At 4,300 feet elevation approximately 21 miles southeast of Houston.
CLAIMS: SG, T, REV, NET, TAN, totalling 312 claims and fractions.
ACCESS: By Buck Creek road from Houston, 35 miles.
OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
METALS: Silver, copper.
DESCRIPTION: Chalcopyrite and tetrahedrite occur in volcanic tuffs and breccias with chlorite, hematite, and quartz-sericite alteration.

WORK DONE: Geochemical soil survey, 1,129 samples covering SG, T, and Rev claims; surface diamond drilling, three holes totalling 2,437 feet on SG 15, 17, and 26.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 126.

CMGW (No. 5, Fig. D)

LOCATION: Lat. 54° 05.5'-10' Long. 126° 21.5'-28' (93L/1W)
OMINECA M.D. At approximately 3,200 feet elevation 1 mile south of Goosly Lake.

CLAIMS: CMGW 1 to 100, GAIL 1 to 50.

ACCESS: By road from Houston, 26 miles.

OWNER: Lewes River Mines Ltd.

OPERATOR: NEWMONT MINING CORPORATION OF CANADA LIMITED, 1230, 355 Burrard Street, Vancouver 1.

DESCRIPTION: Intrusive rocks (syenodiorite-syenomonzonite) intrude volcanic and sedimentary rocks (rhyolite-dacite and argillite).

WORK DONE: 1970 – geochemical soil survey by Lewes River Mines Ltd.; 1971 – surface geological mapping, 1 inch equals 200 feet covering Gail 13-20; geochemical soil survey, approximately 200 samples covering Gail 13-20, 37-42 and CMGW 72-75; induced polarization survey, 11.3 line-miles covering Gail 13-20, 37-42; magnetometer survey, 14.5 line-miles covering CMGW.

REFERENCE: Assessment Report 2863.

SEAN (No. 71, Fig. D)

LOCATION: Lat. 54° 03'-06' Long. 126° 25'-28' (93L/1W)
OMINECA M.D. Adjacent to Parrott and Poplar Creeks, 24 miles southeast of Houston.

CLAIMS: SEAN 1 to 16, 31 to 70.

ACCESS: Via secondary road from Houston to lower Parrott Lake, then 2 miles along a dirt trail.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1, B.C.

DESCRIPTION: The claims are underlain by volcanic rocks of late Mesozoic or early Tertiary age.

WORK DONE: Geological and geochemical surveys in 1970 and 1971.

REFERENCE: Assessment Report 3258.

CHAPIN, LIN (No. 149, Fig. D)

LOCATION: Lat. 54° 03'-06' Long. 126° 28'-30' (93L/1W)
OMINECA M.D. Between 2,800 and 3,600 feet elevation on the south side of Parrott Lakes, about 25 miles south of Houston.

CLAIMS: CHAPIN 1 to 46, LIN 47 to 96.

ACCESS: By road from Houston, 25 miles.

OPERATOR: COSEKA RESOURCES LIMITED (formerly Coin Canyon Mines Ltd.), 2130, 1055 West Hastings Street, Vancouver 1.

METALS: Copper, silver, zinc, lead.

DESCRIPTION: The property is underlain by Hazelton volcanic rocks and occupies part of an erosional 'window' through Tertiary basalts. Geophysical evidence suggests the presence of an Upper Cretaceous pluton on the southeastern part of the property.

WORK DONE: Topography mapped; geochemical soil survey, 30 line-miles covering all claims.

REFERENCES: Assessment Reports 3518, 3519.

K (No. 117, Fig. D)

LOCATION: Lat. 54° 04.7'-07' Long. 126° 32'-36' (93L/2E)
OMINECA M.D. At approximately 3,000 feet elevation south of the centre lake of the Parrott Lakes, 21 miles southeast of Houston.

CLAIMS: K 1 to 54.

ACCESS: By four-wheel-drive vehicle road from Houston, 25 miles.

OWNER: JOREX LIMITED, 904, 85 Richmond Street West, Toronto 1, Ont.

DESCRIPTION: South part of group is underlain by Tertiary volcanic rocks; north part is topographically low with widespread overburden. A gabbro stock lies north of the claims.

WORK DONE: Geochemical survey, 420 soil samples and 22 silt samples; magnetometer survey, 619 readings covering all claims.

REFERENCE: Assessment Report 3486.

PAR (No. 117, Fig. D)

LOCATION: Lat. 54° 04.7'-07' Long. 126° 36'-37.2' (93L/2E)
OMINECA M.D. At approximately 3,000 feet elevation on the southwest shore of the northernmost of the Parrott Lakes.

CLAIMS: PAR 1 to 77.

ACCESS: By road from Houston, 20 miles.

OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, Box 100, Smithers.

DESCRIPTION: Tertiary volcanic rocks of intermediate composition are intruded by a gabbro stock.

WORK DONE: Surface geological mapping, 1 inch equals 800 feet covering all claims; geochemical silt survey, 106 samples covering all claims.

REFERENCE: Assessment Report 3480.

PARK (No. 48, Fig. D)

LOCATION: Lat. 54° 02' Long. 126° 41' (93L/2E)
OMINECA M.D. On Bellelliot Lake, 2 miles east of Owen Lake.

CLAIMS: PARK 1 to 6.

ACCESS: By the Morice River road from Houston, 33 miles.

OWNER: SUMMIT OILS LIMITED, 14th Floor, 1030 West Georgia Street, Vancouver 5.

WORK DONE: Line-cutting and a magnetometer survey covering 22,000 line-feet.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 142; Assessment Report 3059.

HDP (No. 49, Fig. D)

LOCATION: Lat. 54° 04.5' Long. 126° 41' (93L/2E)
OMINECA M.D. Two and one-half miles east of south end of Owen Lake, 23 miles south of Houston.

CLAIMS: HDP 1 to 24, GO 6 to 8.

ACCESS: By the Morice River road and the Nadina road.

OWNER: CONQUEST EXPLORATION LTD., 1500, 675 West Hastings Street, Vancouver 2.

WORK DONE: Induced polarization survey, 5.5 line-miles covering Go 6-8 and HDP 2 and 4.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 132; Assessment Report 3126.

DIAMOND BELLE (No. 148, Fig. D)

LOCATION: Lat. 54° 06' Long. 126° 42' (93L/2E)
OMINECA M.D. At approximately 2,700 feet elevation near Nadina Mountain, 2 miles east of Owen Lake and 20 miles south of Houston.

CLAIMS: DIAMOND BELLE, BLACK BEAR, ETHEL, BELL, IVAN, VAN, totalling 23.

ACCESS: By road from Houston, 30 miles.

OWNER: FRONTIER EXPLORATION LIMITED, 707, 475 Howe Street, Vancouver 1.

METALS: Silver, zinc, lead, copper, gold, cadmium.

DESCRIPTION: Epithermal polymetallic veins occur in pyroclastic rocks with strong local carbonate and pyrite alteration.

WORK DONE: Magnetometer and electromagnetic surveys covering Black Bear.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 139.

SILVER QUEEN (NADINA) (No. 142, Fig. D)

By W. G. Clarke

LOCATION: Lat. 54° 05' Long. 126° 43.8' (93L/2E)
OMINECA M.D. The mine workings are just east of Owen Lake, 21 miles due south of Houston.

CLAIMS: A total of 144 mineral claims and fractions including 17 Crown-granted claims.

ACCESS: Twenty-eight miles from Houston by the Morice River and Owen Lake gravel roads.

OWNERS: Seventeen Crown-granted claims owned by Canadian Exploration Limited and 127 claims held by location owned by Nadina Explorations Limited.

OPERATORS: BRALORNE CAN-FER RESOURCES LIMITED, PACIFIC PETROLEUMS LTD., and NADINA EXPLORATIONS LIMITED, Box 489, Houston.

METALS: Gold, silver, copper, lead, zinc.

DESCRIPTION: Siderite veins contain sphalerite, galena, and chalcopyrite with some associated silica, pyrite, hematite, and specularite. Veins are narrow and dip steeply. Bedrock consists of bedded andesitic pyroclastic rocks and lavas with argillic alteration.

WORK DONE:

Underground geological mapping, 1 inch equals 20 feet; induced polarization and electromagnetic survey, 10 line-miles covering Owl 1-4, Mae, and Mae 1; electromagnetic survey, 10 line-miles covering Owl 3-6; surface diamond drilling, five holes totalling 6,000 feet on Owl 2-6; underground development: drift advance, 117 feet; sub-drift advance, 204 feet; raise advance, 498 feet.

Eight stopes were prepared for production and 15,000 tons of ore was stockpiled on surface. A 48-inch ventilation fan was installed. Electric power was carried 3,000 feet into the mine to supply battery charging stations and pumps.

Camp facilities were expanded to accommodate 60 men. Construction of a 500-ton-per-day mill and plant, including concentrator, crushers, tailings impoundment, water system, shops, warehouse, offices, and dry, was 80 per cent finished at the end of the year.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 134-137.

FAR (No. 47, Fig. D)

LOCATION: Lat. 54° 08.8′ Long. 126° 52.4′ (93L/2W)
OMINECA M.D. On Tsalit Mountain, 18 miles southwest of Houston.

CLAIMS: FAR 1 to 4, six MO (formerly GRUBSTAKE).

ACCESS: By the Morice River and Owen Lake roads from Houston, then 4 miles along a four-wheel-drive vehicle road.

OWNER: RONALD R. BLUSSON, Box 369, Houston.

METALS: Silver, copper, lead, molybdenum.

WORK DONE: Line-cutting.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1929, p. C125; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 141; Assessment Reports 3064, 3096.

RD (No. 114, Fig. D)

LOCATION: Lat. 54° 10.5′ Long. 126° 56.5′ (93L/2W)
OMINECA M.D. On Fenton Creek, 20 miles south of Houston.

CLAIMS: RD 1 to 28.

ACCESS: By the Morice River road from Houston, 20 miles, and then 2 miles by a four-wheel-drive vehicle road up Fenton Creek.

OPERATOR: OREQUEST EXPLORATION SYNDICATE, 808, 837 West Hastings Street, Vancouver 1.

WORK DONE: Geochemical and magnetometer surveys were done in 1970 on RD 1-16.

REFERENCE: Assessment Report 3346.

CODE, FEN (No. 70, Fig. D)

LOCATION: Lat. 54° 10.2′ Long. 126° 57′ (93L/2W)
OMINECA M.D. Immediately northwest of Nadina Mountain and south of the Morice River, 21 miles southwest of Houston.

CLAIMS: CODE, FEN, totalling 201.

ACCESS: By two logging roads leading off the Morice River road.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METALS: Silver, lead, zinc.

WORK DONE: An electromagnetic survey was done on Fen 1-16 and 223-229.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 149; Assessment Report 3257.

ROCK (No. 177, Fig. D)

LOCATION: Lat. 54° 23′ Long. 127° 15′ (93L/6E)
OMINECA M.D. At approximately 4,500 feet elevation on Loljuh Creek, 23 miles west of Houston.

CLAIMS: ROCK 107 to 114, 134, 135.

ACCESS: By helicopter from Smithers, 28 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, Box 2169, Smithers.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite, bornite, and molybdenite are found as disseminations and fracture fillings in granodiorite and volcanic rocks of the Hazelton Group.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 1,000 feet covering all claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 91.

WOLVERINE, LG (No. 95, Fig. D)

LOCATION: Lat. 54° 24′ Long. 127° 29′ (93L/6W)
OMINECA M.D. At approximately 5,500 feet elevation at the head of a southwest tributary of Starr Creek, 25 miles southwest of Smithers.

CLAIMS: WOLVERINE 1 to 6, LG 1 to 28.

ACCESS: By helicopter from Smithers, 25 miles.

OPERATOR: THE GRANBY MINING COMPANY LIMITED, 507, 1111 West Georgia Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Breccia veins of variable width carrying chalcopyrite cut Hazelton volcanic rocks and dykes.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering two claims; geochemical soil survey, 339 samples covering Wolverine 1-6; trenching, 426 feet on Wolverine 1-4.

LAKEVIEW, LV (No. 175, Fig. D)

LOCATION: Lat. 54° 29′ Long. 126° 36′ (93L/7E)
OMINECA M.D. At approximately 4,500 feet elevation 6 miles north of Houston.

CLAIMS: LAKEVIEW, LV, totalling 30.
ACCESS: By four-wheel-drive vehicle road from Houston, 11 miles.
OWNER: Buval Mines Ltd.
OPERATOR: ANNMAR MINING LTD., 3737 Napier Street, Burnaby 2.
METALS: Copper, silver, zinc.
DESCRIPTION: Chalcopyrite and sphalerite, accompanied by chloritization and hematitization, occur in fracture zones in Hazelton volcanic rocks.
WORK DONE: Surface diamond drilling, three holes totalling 248 feet on Lakeview.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 151; Assessment Report 2145.

PAT, ALICE (No. 4, Fig. D)

LOCATION: Lat. 54° 28'-30' Long. 126° 44'-48' (93L/7W)
OMINECA M.D. Three miles north of Barrett Lake, 26 miles southeast of Smithers.
CLAIMS: PAT, ALICE, LORENE, LESLIE, totalling 72.
ACCESS: By Highway 16.
OWNER: SEARCHLIGHT EXPLORATION CORPORATION, 1101, 510 West Hastings Street, Vancouver 2.
WORK DONE: Airborne magnetometer, electromagnetic, geochemical, and induced polarization surveys were made on Pat 9-14, 18, 20, and 22 in 1970.
REFERENCE: Assessment Report 3048.

BARR, LYBDENUM (No. 2, Fig. D)

LOCATION: Lat. 54° 26'-28' Long. 126° 51'-57' (93L/7W)
OMINECA M.D. Immediately west of the community of Barrett Lake, 30 miles southeast of Smithers.
CLAIMS: MAG, CU, LB, BA, totalling approximately 138.
ACCESS: Via Highway 16 and gravel road from Quick.
OWNER: FORTUNE CHANNEL MINES LTD., 145, 890 West Pender Street, Vancouver 1.
WORK DONE: Line-cutting and magnetometer survey covering a total of 31.5 line-miles.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 156; Assessment Report 3077.

JEANIE (No. 51, Fig. D)

LOCATION: Lat. 54° 23'-24' Long. 126° 03'-04.5' (93L/8E)
OMINECA M.D. At an elevation of 2,500 feet one-half mile south of Rose Lake.
CLAIMS: JEANIE 1 to 30.
ACCESS: By road from Highway 16, three-quarters of a mile.
OWNER: WHITESAIL MINES LTD., 202, 560 West Broadway, Vancouver 9.
WORK DONE: Induced polarization survey, 3 line-miles covering Jeanie 5, 7, 15-18.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 156; Assessment Reports 2492, 3118.

COUGAR (No. 139, Fig. D)

LOCATION: Lat. 54° 40'-41.8' Long. 126° 14'-18' (93L/9)
OMINECA M.D. At junction of Strimboldh and Tachek Creeks, 9 miles southwest of Topley Landing.

CLAIMS: COUGAR 1 to 80.

ACCESS: By road from Topley, 17 miles.

OWNER: NITTETSU MINING CO., LTD., 404, 470 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: The property is largely covered with glacial deposits. Meta-andesite and quartz monzonite are present. Pyrite and minor chalcopyrite are disseminated in both rocks.

WORK DONE: Surface geological mapping, 1 inch equals 500 feet; induced polarization survey, 11.4 line-miles.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 167; Assessment Report 3262.

THEZAR (No. 98, Fig. D)

LOCATION: Lat. 54° 45' Long. 126° 20' (93L/9W)
OMINECA M.D. Between 3,100 and 3,400 feet elevation 9 miles southwest of Topley Landing.

CLAIMS: THEZAR 1 to 132.

ACCESS: By road from Topley, 25 miles.

OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: On the property are two copper mineralized zones and several biotite-feldspar porphyry bodies within a large pyritic-propylitic zone in Hazelton volcanic rocks. One zone consists of chalcopyrite and pyrite in a quartz vein stockwork associated with secondary K-feldspar and biotite; the other consists of chalcopyrite and pyrite in a quartz-carbonate vein stockwork in bleached and propylitized volcanic rocks.

WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet and geochemical soil survey, 400 samples covering all claims; road construction, 6.2 miles (westerly from the Fulton Lake access road, approximately 2 miles from Topley-Topley Landing road); trenching, 2,000 feet on Thezar 75, 79-82, 101, and 103.

VICKY (No. 152, Fig. D)

LOCATION: Lat. 54° 36' Long. 126° 49' (93L/10W)
OMINECA M.D. On Highway 16 immediately north of Deep Creek, 17 miles southeast of Smithers.

CLAIMS: VICKY 1 to 16, 1 to 6 Fractions.

ACCESS: Via Highway 16 from Smithers, 17 miles.

OWNER: Evergreen Explorations Ltd.

OPERATOR: CALIENTE MINING CORPORATION, 1101, 510 West Hastings Street, Vancouver 2.
WORK DONE: Induced polarization and magnetometer survey on Vicky 1-8 and 1-3 Fractions.
REFERENCE: Assessment Report 3310.

HB, AJ (No. 96, Fig. D)

LOCATION: Lat. 54° 31' Long. 127° 10' (93L/11E)
OMINECA M.D. Between 5,500 and 7,000 feet elevation in Hunter Basin in the Telkwa Range, 18 miles south of Smithers.
CLAIMS: HB 1 to 26, 28 to 48, 50, AJ 1 to 6.
ACCESS: By road from Telkwa, 16 miles.
OWNER: HUNTER BASIN MINES LTD., 601, 207 West Hastings Street, Vancouver 2.
METALS: Gold, silver, copper.
DESCRIPTION: Hazelton volcanic rocks are cut by fractures and intruded by a stock and satellitic felsite dykes. Vein-type mineralization of chalcopyrite and bornite predominates.
WORK DONE: Road construction, 1.5 miles; stripping, 1,000 feet.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 160.

LOU (No. 50, Fig. D)

LOCATION: Lat. 54° 52' Long. 127° 40' (93L/13E)
OMINECA M.D. At approximately 3,000 feet elevation at Louise Lake, 20 air miles west-northwest of Smithers.
CLAIMS: LOU 1 to 62, 71 to 178.
ACCESS: By fixed-wing aircraft from Smithers, 20 miles.
OWNER: Leitch Mines Limited [now Teck Corporation Ltd].
OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, Box 100, Smithers.
METALS: Copper, molybdenum.
DESCRIPTION: A complex of bedded volcanic rocks and intrusive feldspar porphyry is highly altered to a sericite-kaolin rock and mineralized with tennantite, chalcopyrite, and molybdenite along quartz-filled and dry fractures and as disseminations.
WORK DONE: Induced polarization survey, 10.7 line-miles covering Lou 52-60, 73-82, 84, 93-104, and 113-123.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 161; Assessment Report 2937.

JAN, WINDY (No. 94, Fig. D)

LOCATION: Lat. 54° 53' Long. 127° 52' (93L/13W)
OMINECA M.D. At approximately 5,000 feet elevation at the head of Kitsuns Creek, 10 miles west of Louise Lake and 30 miles northwest of Smithers.

CLAIMS: Thirty-three JAN, 6 WINDY.
ACCESS: By helicopter from Smithers, 30 miles.
OWNER: Leitch Mines Limited [now Teck Corporation Ltd].
OPERATOR: PECHINEY DEVELOPMENT LIMITED, 701, 744 West Hastings Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Copper and molybdenum mineralization is associated with a hornblende-feldspar porphyry intrusion in Mesozoic volcanic and sedimentary rocks.
WORK DONE: Surface diamond drilling, two holes totalling 2,206 feet on Jan 30.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 161.

MIDNIGHT (No. 174, Fig. D)

LOCATION: Lat. 54° 45' Long. 127° 15' (93L/14E)
OMINECA M.D. At approximately 5,500 feet elevation on Hudson Bay Mountain, about 6 miles from Smithers.
CLAIMS: MIDNIGHT 1 to 8, NOON 1, BV 1 to 6.
ACCESS: By road and foot or helicopter from Smithers, 6 miles.
OWNER: Buval Mines Ltd.
OPERATOR: ANNMAR MINING LTD., 3737 Napier Street, Burnaby 2.
METALS: Copper, silver.
WORK DONE: Trenching, 100 feet on Noon claim.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, pp. 120, 121; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 85.

GLACIER GULCH (No. 99, Fig. D)

By W. G. Clarke

LOCATION: Lat. 54° 49' Long. 127° 18' (93L/14W)
OMINECA M.D. Between 3,000 and 4,000 feet elevation, in Glacier Gulch on the east side of Hudson Bay Mountain, 5 miles northwest of Smithers.
CLAIMS: Two hundred and sixty-two claims and six mineral leases.
ACCESS: By road from Smithers, 8 miles.
OWNER: Climax Molybdenum Corporation of British Columbia Limited.
OPERATOR: AMERICAN METAL CLIMAX INC., Mines Park, Golden, Colo.
METALS: Molybdenum, tungsten.
DESCRIPTION: Molybdenite, scheelite-powellite, wolframite, and chalcopyrite occur in quartz vein sheetings and stockworks cutting Hazelton volcanic rocks and younger intermediate to acidic intrusive rocks.
WORK DONE: Two bulk sample raises were driven, total length 280 feet. A total of 40,179 feet of diamond drilling was done in 48 holes. Geological surveys were made underground.
REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1966, pp. 86-90; 1967, p. 90; 1968, p. 120; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 85; 1970, p. 163.

CRONIN MINE (No. 157, Fig. D)

By W. G. Clarke

LOCATION: Lat. 54° 55.3′ Long. 126° 48.5′ (93L/15W)
OMINECA M.D. On the east slope of Mount Cronin.

CLAIMS: SUNRISE NO. 7 Crown-granted mineral claim and seven claims held under option.

ACCESS: Thirty miles by road from Smithers.

OWNER: New Cronin Babine Mines Limited.

OPERATOR: KINDRAT MINES LTD., Box 1057, Smithers.

METALS: Gold, silver, lead, zinc, cadmium (production shown in Table 1).

WORK DONE: The mine operated from May to November. Mining was both underground and open pit.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 164.

DRIFT (No. 72, Fig. D)

LOCATION: Lat. 54° 52.1′ Long. 126° 57′ (93L/15W)
OMINECA M.D. Twelve miles northeast of Smithers on Harvey Creek, a tributary of Driftwood Creek.

CLAIMS: DRIFT 1 to 10 (formerly HARVEY).

ACCESS: By the Babine Lake and Driftwood Creek roads from Smithers.

OWNER: DRIFTWOOD MINES LTD., 20th Floor, 1055 West Hastings Street, Vancouver 1.

METALS: Copper, silver.

DESCRIPTION: Chalcopyrite, bornite, and tetrahedrite occur in quartz veins and silicified zones in volcanic rocks of the Hazelton Group.

WORK DONE: A geological survey on Drift 1-24.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1928, p. 164; Assessment Report 3277.

GRANISLE MINE (No. 156, Fig. D)

By N. C. Carter

LOCATION: Lat. 54° 56.5′ Long. 126° 09.5′ (93L/16E)
OMINECA M.D. On McDonald (Copper) Island, 10 miles north of Topley Landing.

CLAIMS: Thirty-one Crown-granted and 15 recorded claims on McDonald Island and 44 recorded claims on Sterrett Island and one adjoining island to the south.

ACCESS: By ferry from the townsite of Granisle, on the west side of Babine Lake, 7 miles by gravel road from Topley Landing.

OWNER: GRANISLE COPPER LIMITED, 1111 West Georgia Street, Vancouver 5.

METAL: Copper (production shown in Table 1).

DESCRIPTION:

The writer's original geological work at and near Granisle mine was done in 1965. In 1966 and 1967 additional regional and property mapping was done in the Babine area, the results of which are contained in the Annual Reports of the Minister of Mines and Petroleum Resources for those years. Limited mapping in the area of the Granisle pit was also done in 1966 and 1967.

In 1969 Granisle Copper Limited embarked on a major drill programme to search for more ore. The drilling results added significantly to the geological knowledge of areas adjacent to the open pit and geological relationships exposed in the pit during mining operations clarified and modified some of the writer's original ideas.

Benches in the open pit were mapped in July of 1970 and drill core was logged in 1970 and 1971. A sketch of the geology of McDonald Island and a generalized pit plan with cross-section are shown on Figure 28.

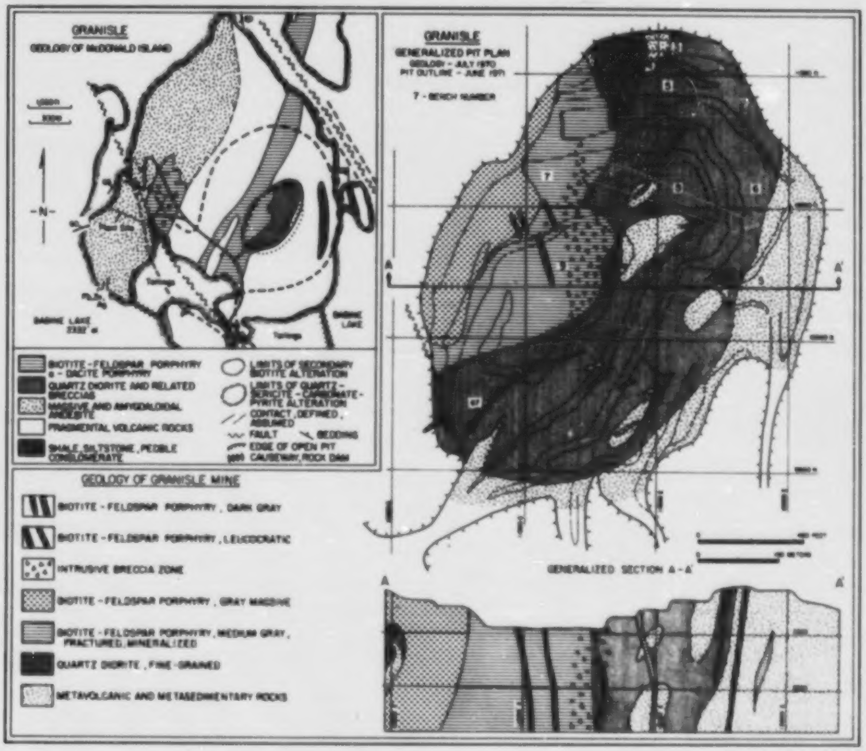

GRANISLE
GEOLOGY OF McDONALD ISLAND
-N-
BABINE LAKE
Tailings
BIOTITE-FELDSPAR PORPHYRY & - DACITE PORPHYRY
QUARTZ DIORITE AND RELATED BRECCIAS
MASSIVE AND AMYGDALOIDAL ANDESITE
FRAGMENTAL VOLCANIC ROCKS
SHALE, SILTSTONE, PEBBLE CONGLOMERATE
LIMITS OF SECONDARY BIOTITE ALTERATION
LIMITS OF QUARTZ-SERICITE-CARBONATE-PYRITE ALTERATION
CONTACT, DEFINED, ASSUMED
FAULT
BEDDING
EDGE OF OPEN PIT
CAUSEWAY, ROCK DAM
GEOLOGY OF GRANISLE MINE
BIOTITE-FELDSPAR PORPHYRY, DARK GRAY
BIOTITE-FELDSPAR PORPHYRY, LEUCOCRATIC
INTRUSIVE BRECCIA ZONE
BIOTITE-FELDSPAR PORPHYRY, GRAY MASSIVE
BIOTITE-FELDSPAR PORPHYRY, MEDIUM GRAY, FRACTURED, MINERALIZED
QUARTZ DIORITE, FINE-GRAINED
METAVOLCANIC AND METASEDIMENTARY ROCKS
GRANISLE
GENERALIZED PIT PLAN
7 - BENCH NUMBER
A
A'
GENERALIZED SECTION A-A'

Figure 28. Geology of Granisle mine.

LOCAL GEOLOGY: The Granisle mine is in the central part of McDonald Island, which is triangular shaped with each side about a mile (1.6 km.) long.

The island is underlain chiefly by volcanic and sedimentary rocks of the Lower Jurassic Hazelton Group which are divisible into two distinct members. Green to purple water-lain andesite tuffs and breccias with intercalated chert pebble conglomerates underlie the central and eastern part of the island. These rocks, which strike northerly and dip at moderate angles to the west, are apparently overlain in the western part of the island by massive and amygdaloidal andesitic flow rocks and thin-bedded shales.

Porphyry Intrusions: Copper mineralization is associated with a series of porphyry intrusions which occur in the central part of the island. The oldest of these is an elliptical plug of quartz diorite, however the largest and most prominent is a 400 to 650-foot (120 to 200-metre) wide dyke of biotite-feldspar porphyry which strikes northeasterly across the island. This wide dyke is evident as a ridge which, before mining, culminated as a hill 330 feet (100 metres) high above lake level. There are small dykes very similar in composition that post-date mineralization. The multiple intrusions are well displayed in the present open pit (Fig. 28).

The first intrusive stage is represented by a northeast-oriented oval cylindrical pluton of fine-grained, dark grey quartz diorite, the original dimensions of which were approximately 1,000 by 1,650 feet (300 by 500 metres) in plan. The quartz diorite is commonly a microporphyry with 1-millimetre long phenocrysts of zoned andesine set in a fine-grained quartz-plagioclase-biotite matrix. Original amphibole grains, now competely altered to fine masses of biotite, locally impart a foliation to the rock.

Within the quartz diorite, particularly along its eastern edge, are irregular inclusions of metavolcanic and metasedimentary rocks which had a wider distribution in the original outcrop. Three varieties occur, two of which are breccias believed to be the product of recrystallization and metasomatism of the fragmental volcanic and sedimentary rocks marginal to the intrusive. One variety of breccia includes 1 to 3-centimetre rounded chert and volcanic fragments in a fine-grained diorite matrix, while another consists of chert fragments in a white felsic matrix which also contains 4-millimetre clasts of very fine-grained quartz and chloritized biotite. The third variety of inclusions consists of fine-grained, light to dark grey, hornfelsed volcanic and sedimentary rocks.

The most important intrusions are biotite-feldspar porphyries of several distinct but very similar phases that overlap the period of mineralization. The largest and oldest is the wide northeasterly trending dyke which is intrusive into the western edge of the quartz diorite pluton. In plan, a salient of this porphyry projects into the quartz diorite in the pit area and the contact between the two is nearly vertical. Small dykes of porphyry radiate outward from the main dyke. The main porphyry is light to dark grey and ranges in composition from quartz diorite to granodiorite depending on the amount of K-feldspar present, most of which is of secondary origin. Characteristically the rock is a crowded porphyry with between 35 and 50 per cent by volume consisting of 2-millimetre long euhedral, fresh, zoned plagioclase (oligoclase-andesine) phenocrysts and 1-millimetre flakes and books of fresh brown biotite. These phenocrysts are set in a fine-grained matrix consisting essentially of quartz, plagioclase, patches of fine-grained biotite some of which is pseudomorphic after amphibole, K-feldspar, and apatite. Outside of the pit area, the porphyry is a uniform grey colour and contains hornblende phenocrysts as well as biotite and plagioclase.

Several of the phases of porphyry intrusions can be recognized within the pit area. While these are all grossly similar in appearance and composition as described above, they can be distinguished by slight differences in the colour of the matrix, resulting mainly from variations in grain size, by crosscutting relationships, and by the presence of inclusions of earlier phases in later ones.

The earliest and most widespread porphyry phase is the medium-grained, well-fractured, and mineralized biotite-feldspar porphyry exposed in the central part of the pit. Small dykes of similar material were noted cutting the quartz diorite. Bordering this type on the west is a massive grey porphyry of uniform appearance, differing mainly by having a slightly coarser matrix and by a relative absence of fractures and mineralization. These two varieties of biotite-feldspar porphyry are probably products of the initial stage of porphyry intrusion with fractures being best developed in the contact area between the porphyry and the quartz diorite.

Occurring along the contact between the biotite-feldspar porphyry and the quartz diorite are narrow discontinuous dykes and stringers of intrusive breccia which range from several inches to several feet wide and follow the principal fracture directions. The dykes and stringers are contained in a northerly trending, vertical zone which is up to 200 feet (60 metres) wide. The intrusive breccias commonly contain 1 to 2-centimetre rounded fragments of both the medium grey mineralized porphyry and the quartz diorite in a fine-grained light to dark grey granulated matrix of strained and fractured quartz, broken plagioclase grains, and locally abundant very fine-grained biotite. The breccias are also mineralized, with some disseminated chalcopyrite occurring in the matrix.

Dykes of light grey, relatively leucocratic biotite-feldspar porphyry up to 3 metres wide, that also parallel the dominant fracture pattern, occur as northwest striking vertical dykes in the main porphyry mass and northeast striking vertical to steep-dipping dykes in the marginal quartz diorites. These dykes have a coarse matrix which has a lower biotite content. Rounded inclusions of mineralized porphyry are common in the leucocratic types which are only locally mineralized themselves by minor disseminated pyrite and chalcopyrite.

The latest porphyry phase, of early post-mineral age, occurs as dykes of dark grey biotite-feldspar porphyry which intrude dioritic rocks in the eastern part of the pit. The plagioclase phenocrysts are sparser than in earlier phases, and the dark grey matrix is due to the presence of very fine-grained biotite and uniformly disseminated magnetite. Only very minor chalcopyrite was noted in this phase.

Structure: The porphyry dyke on McDonald Island is bounded by two parallel northwest striking block faults. The westernmost of these is marked by a topographic lineament which crosses the island to the south of the mine and extends through the western part of McDonald Island in the vicinity of the plant site. The eastern fault extends along the channel separating McDonald Island from the east shore of Babine Lake.

Within the pit area, the main fractures are vertical to steeply dipping and include the following sets: north 20 to 40 degrees east; north 70 to 85 degrees east; and north 30 to 60 degrees west. Horizontal to slightly inclined fractures are also common. In general the resulting fracture spacing may vary from 0.1 to 1 metre.

Movement has occurred along many of the fractures; the most common fault directions being north 20 degrees east and north 30 to 60 degrees west.

Alteration and Mineralization: An oval zone of potassic alteration is roughly coincident with the ore zone or the pit outline. Within this zone, the intrusive rocks appear relatively fresh in hand specimen and plagioclase phenocrysts are essentially unaltered. The main alteration product is secondary biotite which occurs as very fine-grained aggregates that retain original amphibole outlines in both the porphyries and the quartz diorites. Fine-grained biotite is also uniformly distributed in the matrix of the intrusive rocks. However, secondary K-feldspar is also present within the ore zone, occurring most commonly as fine grains in the matrix of the biotite-feldspar porphyry, and only detectable by staining. Pink K-feldspar also forms thin envelopes enclosing veinlets and fractures in the lower benches of the pit. Similar alteration was noted at depth in cores of holes drilled in the centre of the orebody.

The potassic alteration zone is gradational outward to a quartz-sericite-carbonate-pyrite zone. This zone, apparent by iron staining on weathered surfaces, is visible on the higher benches at the north end of the pit and along roads south of the pit. The pyrite halo is elliptical in plan, and is roughly coaxial with the ore zone, but extends 500 to 800 feet (150 to 250 metres) beyond it. It merges with a similar alteration along the regional fault southwest of the pit. The entire quartz-sericite-carbonate-pyrite zone measures 3,300 by 4,000 feet (1,000 by 1,200 metres). Within this zone, the intrusive rocks and most of the volcanic rocks are weathered to a uniform buff colour. Abundant fine-grained quartz has been introduced, mafic minerals have been altered to a mixture of sericite and carbonate, and plagioclase is clouded by sericite. Pyrite occurs both as disseminations and as fracture fillings.

Outside the pyrite halo, most of the rocks on McDonald Island display varying degrees of propylitic alteration; chlorite, carbonate, and epidote are common constituents in the matrix of volcanic rocks and carbonate-filled fractures are widespread. Pyrite also occurs in fractured zones. Clay mineral alteration is confined to narrow gouge and fault zones.

The principal minerals within the ore zone are chalcopyrite, bornite, and some pyrite. Medium to coarse-grained chalcopyrite is most widespread, occurring principally in quartz-filled fractures which vary from 1 to 5 metres wide. The mineralized fractures have preferred orientations of north 35 to 60 degrees east and north 30 to 60 degrees west, and dip steeply. A horizontal fracture set in the pit is only weakly mineralized. Chalcopyrite is also disseminated in the quartz diorite and associated metasedimentary and metavolcanic rocks.

Bornite is most widespread in the southern half of the ore zone where it occurs with chalcopyrite and quartz in fractures. The greatest concentrations of bornite were confined to the upper 250 feet (76 metres) of the south end of the orebody. During the first few years of mining operations a number of veins up to 0.3 metre wide and composed of coarse-grained bornite, chalcopyrite, quartz, biotite, and apatite were uncovered. They were vertical and had a strike of north 50 degrees east but were discontinuous.

Gold and silver are recovered from the copper concentrates. Molybdenite occurs locally within the ore zone, most commonly in drusy quartz veinlets which appear to be later than the main stage of mineralization. Magnetite and specularite are common in the north half of the ore zone where they occur in fractures with chalcopyrite and pyrite.

The greatest concentration of pyrite is peripheral to the copper orebody, where it occurs as blebs, stringers, and disseminations.

Near the southwest end of the island, approximately 4,000 feet (1,200 metres) southwest of the pit, a narrow quartz-carbonate-pyrite-galena-sphalerite-chalcopyrite vein containing some silver follows a northeast striking fault for a limited distance. Ore reserves were quoted in early 1971 as being 89,600,000 tons averaging 0.44 per cent in copper content.

Age of Mineralization: K-Ar age determinations on four biotite samples collected in and near the Granisle orebody yielded a mean age of 51.2 ± 2 million years. The biotites analysed were from the following samples: (i) medium grey, well-mineralized biotite-feldspar porphyry from the south-central part of the orebody, (ii) a quartz-chalcopyrite-bornite-apatite vein, also from the southern end of the orebody, (iii) a unmineralized dyke of biotite-feldspar porphyry 3,000 feet (910 metres) southwest of the orebody, and (iv) a dyke of dark grey biotite-feldspar porphyry of nearly post-mineral age, collected from the east side of the pit.

The similarity in age for all these samples indicates not only the close time relations between intrusive and hydrothermal activity, but also that mineralization was apparently synchronous or nearly so with intrusion.

WORK DONE:

Construction work started on a plant expansion to 14,000 tons per day. A second Bucyrus-Erie 40-R drill was purchased and expansion of the pit shop started.

A causeway was built to Snowshoe Island where a new barge landing was constructed and a bubbler system was installed from this to the West landing.

Ten acres of grass was sown successfully on the No. 1 tailings pond. A systematic ecological sampling programme of Babine Lake was initiated. Ten houses were built on the townsite and an additional 11 mobile-home lots were prepared.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1965, pp. 90-99, Northern Babine Lake Area and Granisle Copper Limited; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 165-167.

KETZA, JEN, RUM (No. 97, Fig. D)

LOCATION: Lat. 54° 56' Long. 126° 12' (93L/16E)
OMINECA M.D. On Newman Peninsula and adjacent Rum Island, Babine Lake.

CLAIMS: KETZA 1, 3 to 7, 9, 11, 13 to 18, JEN 1 to 28, RUM 4, 7 to 14.

ACCESS: By boat or helicopter from Granisle townsite, 3 to 4 miles to Jen claims and 7 miles to Rum claims.

OWNER: Texacal Resources Ltd.

OPERATOR: PHELPS DODGE CORPORATION OF CANADA, LIMITED, 404, 1112 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Pyrite and trace amounts of copper mineralization occur in fractured andesitic (?) tuffs and breccias. Smoky quartz and gypsum veinlets were found in Rum diamond-drill hole. Alteration consists of bleaching and silicification.

WORK DONE: Reconnaissance surface geological mapping; surface diamond drilling, three holes totalling 1,513 feet on Rum 13 and Jen 7 and 8.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 167.

BELL MINE (NEWMAN) (No. 158, Fig. D)

LOCATION: Lat. 55° 00' Long. 126° 14' (93L/16E)
Report on this property in section 93M/1E.

CORTINA (No. 140, Fig. D)

LOCATION: Lat. 54° 46'-47.8' Long. 126° 14.5'-18' (93L/16W)
OMINECA M.D. At approximately 3,000 feet elevation south of the east end of Fulton Lake, 5 miles west of Topley Landing.

CLAIMS: CORTINA 1 to 52.

ACCESS: By road from Topley, 25 miles.

OWNER: NITTETSU MINING CO., LTD., 404, 470 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: The area is underlain by andesite porphyry, tuff breccia, and porphyry dykes. Chalcopyrite and pyrite occur as disseminations and fracture fillings in porphyry and near its contact zone.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet; induced polarization survey, 5.42 line-miles; rotary drilling, two holes totalling 800 feet.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 167; Assessment Report 3542.

TOP, CAVONA (No. 3, Fig. D)

LOCATION: Lat. 54° 49'-51' Long. 126° 14'-16' (93L/16)
OMINECA M.D. At approximately 3,000 feet elevation 2 miles northwest of Topley Landing.

CLAIMS: TOP 1 to 163, CAVONA 1 to 14, 21 to 36, AL 1 to 4.

ACCESS: By road from Topley, 30 miles.

OWNER: NITTETSU MINING CO., LTD., 404, 470 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: The area is largely devoid of outcrop, but appears to be underlain principally by sedimentary and volcanic rocks.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Top and Al claims; induced polarization survey, 6.62 line-miles covering Top and Al claims; reconnaissance induced polarization surveys, 4.31 line-miles covering Top claims and 2.20 line-miles covering Cavona claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 167; Assessment Reports 3030, 3543, 3544.

HAZELTON 93M

DOROTHY (No. 56, Fig. D)

LOCATION: Lat. 55° 14.5' Long. 126° 10' (93M/1E, 8E)
OMINECA M.D. Six miles northwest of Natowite Lake and 50 miles northeast of Smithers.

CLAIMS: DOROTHY, totalling approximately 150.

ACCESS: By floatplane from Smithers, 50 miles.

OWNERS: Twin Peak Mines Ltd. and Ducanex Resources Limited.

OPERATOR: DUCANEX RESOURCES LIMITED, 3701 Royal Trust Tower, Box 354, Toronto-Dominion Centre, Toronto, Ont.

METALS: Copper, molybdenum.

WORK DONE: Helicopter aeromagnetic survey, 418 line-miles in 1970; surface diamond drilling, 25 holes totalling 8,000 feet on Dorothy, 41, 47, 48, 501, 2 Fraction, and 5 Fraction.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 169; Assessment Report 2959.

HAUT (No. 100, Fig. D)

LOCATION: Lat. 55° 07-09.6' Long. 126° 02'-05' (93M/1E)
OMINECA M.D. At 3,000 feet elevation 3 miles north-northwest of Natowite Lake, about 50 miles northeast of Smithers.

CLAIMS: HAUT, totalling 204.

ACCESS: By fixed-wing aircraft from Smithers, 60 miles.

OWNER: AMOCO CANADA PETROLEUM CO. LTD., 2160, 1055 West Hastings Street, Vancouver 1.

DESCRIPTION: Drilling revealed the area is underlain by argillite, andesite tuff, and fragmental green volcanic rocks. The only sulphide present is pyrite.

WORK DONE: Surface diamond drilling, eight holes totalling 3,500 feet on Haut 45, 66, 86, 95, 102, 113, 128, and 181.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 169; Assessment Report 2872.

MAST (No. 120, Fig. D)

LOCATION: Lat. 55° 12.5'-14' Long. 126° 07'-11' (93M/1E)
OMINECA M.D. Three miles southeast of Nakinilerak Lake, north of Babine Lake.

CLAIMS: MAST 1 to 32, 41, 42, 51, 52, 16 to 68, TAK 1 to 8.

ACCESS: By aircraft from Smithers, 50 miles.

OWNER: TECK CORPORATION LTD., 7th Floor, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Disseminated pyrite with minor chalcopyrite occurs in silicified andesitic volcanic rocks and small diorite intrusions.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Mast 5, 7, 14, and 16; geochemical soil survey, 250 samples covering same claims; induced polarization survey, 10 line-miles covering same claims; surface diamond drilling, five holes totalling 2,000 feet on Mast 7, 14, and 16.

BELL MINE (NEWMAN) (No. 158, Fig. D)

By W. G. Clarke

LOCATION: Lat. 55° 00' Long. 126° 14' (93M/1E)
OMINECA M.D. At the north end of Newman Peninsula, on Babine Lake.

CLAIMS: NEWMAN, LINDA, LAD, and others, totalling 181.

ACCESS: From Highway 16 by gravel road, via Topley Landing, 42 miles to a landing on the west shore of Babine Lake, 8 miles north of Granisle, then by barge.

OWNER: NORANDA MINES, LIMITED, Bell Copper Division, Box 2000, Granisle.

METAL: Copper.

WORK DONE:

Construction of a concentrator with a capacity of 10,000 tons per day was begun. The primary and secondary crusher buildings were erected and the crushers installed (an Allis-Chalmers 42-65 primary crusher, a Nordberg 7-foot standard secondary crusher, and two Nordberg 7-foot short head tertiary crushers). The mill building was erected and enclosed. A service building, which houses dry facilities, offices, shop and service facilities, was completed and occupied.

A 138-kilovolt transmission line, which includes an 8,000-foot underwater crossing of Babine Lake, was built to the minesite and energized. A 300,000-U.S. gallon woodstave fresh-water tank was constructed and filled. A 120-ton barge and a 9-ton tug were put into service.

S and G Mine Developers completed removal of 1,930,318 cubic yards of overburden and 1,483,203 cubic yards of waste rock, to open four mining benches in the pit. Most of the pit equipment was purchased, but only a grader was in operation.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1965, pp. 99-102; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 170.

BEN (No. 74, Fig. D)

LOCATION: Lat. 55° 03'-04' Long. 126° 11'-15' (93M/1E)
OMINECA M.D. Immediately north of Newman Peninsula, Babine Lake.
CLAIMS: BEN 1 to 20, 23 to 42.
ACCESS: By boat from Topley Landing, 4 miles.
OWNER: TORWEST RESOURCES (1962) LTD., 700, 1177 West Hastings Street, Vancouver 1; field office, Box 578, Merritt.
METAL: Copper.
WORK DONE: Magnetometer, electromagnetic, geological, and geochemical surveys.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 170; Assessment Reports 2524, 3261.

OFF, RAID, DDT (No. 73, Fig. D)

LOCATION: Lat. 55° 04.5' Long. 126° 20' (93M/1W)
OMINECA M.D. Between 2,332 and 4,700 feet elevation on the southeast slope of Old Fort Mountain, 40 miles northeast of Smithers.
CLAIMS: OFF 1 to 8, 15 to 18, RAID 1 to 14, DDT 5 to 14, 19 to 44.
ACCESS: By boat from Smithers Landing, 10 miles.
OWNER: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
METALS: Copper, molybdenum.
WORK DONE: Induced polarization and resistivity surveys, 5.5 line-miles on Off 3-6, Raid, 9-12, DDT 9-12.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1966, p. 93; Assessment Report 3260.

SPARK, JOY (No. 8, Fig. D)

LOCATION: Lat. 55° 14'-17' Long. 126° 18'-25' (93M/1W, 8W)
OMINECA M.D. Between elevations of 2,400 to 3,000 feet at the northeast corner of Morrison Lake, about 45 air miles northeast of Smithers.

CLAIMS: SPARK 1 to 72, JOY 1 to 60.

ACCESS: By floatplane from McLure Lake or by helicopter from Smithers.

OWNER: PALISADE EXPLORATION CORPORATION LTD., 1101, 510 West Hastings Street, Vancouver 2.

WORK DONE: Geochemical, induced polarization, and electromagnetic surveys were made on the claims in 1970.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 112; Assessment Reports 2103, 2896.

WASP (No. 162, Fig. D)

LOCATION: Lat. 55° 04.5' Long. 126° 40' (93M/2E)
OMINECA M.D. At approximately 3,000 feet elevation 3 miles west of Babine Lake, 14 miles south of Fort Babine Post Office.

CLAIMS: KATE 1 to 8, 1 to 3 Fractions.

ACCESS: By road from Smithers, 48 miles.

OWNER: EVERGREEN EXPLORATIONS LTD., 5424 Halifax Street, Burnaby 2.

METAL: Copper.

DESCRIPTION: Two drill holes by previous owner established sulphides in a Tertiary stock near a hornfelsed contact.

WORK DONE: Induced polarization survey, 3 line-miles covering Kate 3-6 and 2 Fraction.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 132.

DAISY (No. 52, Fig. D)

LOCATION: Lat. 55° 13'-19.5' Long. 126° 55.1'-58.6' (93M/2W, 7W)
OMINECA M.D. At elevations of 3,000 to 4,000 feet on Netalzul Mountain, 25 miles east of Hazelton.

CLAIMS: DAISY 13 to 36, 101 to 112, 137 to 148, 161 to 171, NETALZUL 1 to 16.

ACCESS: By helicopter from Smithers, 33 miles.

OWNER: TWIN PEAK MINES LTD., 202, 560 West Broadway, Vancouver 9.

METALS: Copper, molybdenum.

WORK DONE: Ground magnetometer and electromagnetic survey, 10 line-miles covering Daisy and Netalzul claims; airborne magnetometer survey, 200 square miles covering Daisy claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 174; Assessment Reports 2962, 3047.

ROB (No. 179, Fig. D)

LOCATION: Lat. 55° 11′ Long. 127° 08′ (93M/3E)
OMINECA M.D. At approximately 6,000 feet elevation south of Blunt Mountain, 18 miles southeast of Hazelton.
CLAIMS: ROB, totalling 12.
ACCESS: By helicopter from Smithers, 30 miles.
OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.
METALS: Copper, molybdenum.
DESCRIPTION: Chalcopyrite and molybdenite occur on fractures in granodiorite and Hazelton Group sedimentary rocks. Silicification of the rocks is evident.
WORK DONE: Geochemical survey, approximately 100 rock samples.

MARY (No. 115, Fig. D)

LOCATION: Lat. 55° 08′-12′ Long. 127° 09.5′-15′ (93M/3E)
OMINECA M.D. At approximately 5,000 feet elevation at the head of Luno Creek, 29 miles north of Smithers.
CLAIMS: MARY 1 to 38, BLUNT 101 to 164.
ACCESS: By helicopter from Smithers, 29 miles.
OWNER: TWIN PEAK MINES LTD., 202, 560 West Broadway, Vancouver 9.
METALS: Copper, molybdenum.
DESCRIPTION: Traces of chalcopyrite and molybdenite were noted with quartz stringers and stockworks in a Tertiary intrusion.
WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering Mary 1 to 38; aeromagnetic survey covering Blunt claims.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 172; Assessment Reports 3047, 3360.

SILVER TIP (No. 102, Fig. D)

LOCATION: Lat. 55° 06′ Long. 127° 32′ (93M/4E)
OMINECA M.D. At approximately 5,000 feet elevation at head of Straw Creek, about 13 miles northwest of Moricetown.
CLAIMS: SILVER TIP 1 to 34, S 1 to 20, 27, 29, 31, 33, 35, 37, 39, 41, 43, E 1 to 32.
ACCESS: By road from Moricetown, 13 miles.
OWNER: Sultana Silver Mines Limited.
OPERATOR: UTAH MINES LTD., 412, 510 West Hastings Street, Vancouver 2.
METALS: Copper, molybdenum.
DESCRIPTION: Chalcopyrite and molybdenite occur in quartz veins and a weak stockwork in the Rocher Deboule granodiorite stock.
WORK DONE: Surface diamond drilling, two holes totalling 1,002 feet on Silver Tip 6.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 173; Assessment Report 2855.

LOUDEL (No. 37, Fig. D)

LOCATION: Lat. 55° 10.5' Long. 127° 42.5' (93M/4E)
OMINECA M.D. Between 1,200 and 4,000 feet elevation 4.5 miles southwest of Hazelton.

CLAIMS: LOUDEL 1 to 7, 7A, 9 to 30, 33 to 35, 46, 53 to 74, CHAP 1 to 23, Mineral Leases M-79 (GOLDEN WONDER), M-80 (HOMESTAKE, RED CROSS, PATRIOTIC, MONOPLANE, MASCOT, LITTLE HELEN, COPPER HILL, SKEENA), M-90 (HUCKLEBERRY), M-91 (MANDON).

ACCESS: By road from Hazelton, 4.5 miles.

OWNER: CHAPPARAL MINES LTD., 328, 470 Granville Street, Vancouver 2.

METALS: Copper, tungsten, silver, gold.

DESCRIPTION: The claims are underlain by sedimentary and volcanic rocks of the upper Hazelton Group.

WORK DONE: Partial geological mapping; geochemical soil survey, 20 line-miles covering Loudel 1 to 6; aeromagnetic and induced polarization surveys covering Loudel 58 to 68; trenching and stripping, 7,250 cubic yards on Loudel 53 and 54; surface diamond drilling, four holes totalling 761 feet on Loudel 1, 2, and 7.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 173; Assessment Report 3463.

ACE (No. 178, Fig. D)

LOCATION: Lat. 55° 23.5' Long. 127° 18' (93M/6W)
OMINECA M.D. At approximately 5,500 feet elevation south of Natlan Peak, 18 miles northeast of Hazelton.

CLAIMS: NAT 1 to 20.

ACCESS: By helicopter from Hazelton, 18 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: The property is largely underlain by folded and faulted Bowser Group (?) sedimentary rocks intruded by biotite-feldspar porphyry. Chalcopyrite and molybdenite occur in the intrusions and in the contact zone with the sedimentary rocks.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 400 feet; geochemical soil, silt, and rock sample survey, 200 silt and soil samples and 70 rock samples.

REFERENCE: Assessment Report 1066.

SUNRISE (No. 118, Fig. D)

LOCATION: Lat. 55° 21' Long. 127° 29' (93M/6W)
OMINECA M.D. At approximately 4,800 feet elevation on the north side of Nine Mile Mountain, 13 miles northeast of Hazelton.

CLAIMS: VAN 1 to 6, ALPHA 6 to 30, and ETHEL, SUNSET, SUNRISE, NOONDAY, HIDDEN TREASURE, ETHEL Fraction Crown-granted claims.

ACCESS: By road from Hazelton, 13 miles.

OWNER: SUNRISE SILVER MINES LTD., 818 Cumberland Crescent, North Vancouver.

METALS: Silver, lead, zinc, antimony.

DESCRIPTION: Tetrahedrite (freibergite) and galena occur in faults and fissures in granodiorite.

WORK DONE: Road construction, 3 miles (from Silvercup to Sunrise property); stripping, 300 feet by 10 feet on Alpha 17; levelling for future mill, 200 feet by 200 feet on Alpha 18.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 175.

NIL (No. 121, Fig. D)

LOCATION: Lat. 55° 23.3'-24.7' Long. 126° 43'-45.5' (93M/7)
OMINECA M.D. At approximately 3,000 feet elevation, 3.5 miles west of Nilkitkwa Lake, 2 miles northeast of French Peak.

CLAIMS: NIL 1 to 28.

ACCESS: By road from Smithers, 87 miles.

OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, Box 100, Smithers.

DESCRIPTION: No outcrop within property – probably on or near contact of Hazelton volcanic rocks and Bowser sedimentary rocks.

WORK DONE: Induced polarization survey, 2.6 line-miles covering all claims.

MAT (No. 53, Fig. D)

LOCATION: Lat. 55° 27'-30' Long. 126° 45'-49' (93M/7W)
OMINECA M.D. At approximately 3,000 feet elevation between Babine River and Nichyeskwa Creek, about 4 miles northwest of their confluence.

CLAIMS: MAT 1 to 62.

ACCESS: By road from Smithers to north end of Babine Lake, 70 miles, then by helicopter, 12 miles.

OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, Box 100, Smithers.

DESCRIPTION: Sedimentary rocks, tuffs, and andesite lavas strike north-northwest and are intruded by a small granitic plug.

WORK DONE: Electromagnetic survey, 10 line-miles (conclusion of survey started in 1970 which totalled 36.8 line-miles).

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 176; Assessment Report 3066.

RO (No. 122, Fig. D)

LOCATION: Lat. 55° 25.8' Long. 126° 52.5' (93M/7W)
OMINECA M.D. At approximately 5,000 feet elevation 5 miles north of French Peak, 7 miles west of the north end of Nilkitkwa Lake.

CLAIMS: RO 1 to 66.

ACCESS: From Smithers by road, 90 miles, and trail or helicopter, 3 miles.
OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, Box 100, Smithers.
METAL: Copper.
DESCRIPTION: Rock outcrops only at the southwest end of the property. Here a porphyry intrusion has hornfelsed the surrounding Bowser sedimentary rocks and is contained in a large pyrite halo. Some copper minerals have been found in boulders.
WORK DONE: Geochemical soil survey, 410 samples covering all claims.

SNOW, FOG (No. 101, Fig. D)

LOCATION: Lat. 55° 21.7' Long. 126° 53' (93M/7W)
OMINECA M.D. Situated on a plateau on the southwest side of French Peak.
CLAIMS: SNOW 1 to 6, FOG 1 to 22.
ACCESS: By helicopter from the north end of Babine Lake, 10 miles.
OWNER: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.
METALS: Copper, molybdenum, silver, zinc.
DESCRIPTION:

A Granisle-type of multiphase porphyry intrusion has been emplaced along a disconformity between Hazelton Group sedimentary rocks, including shales, mudstones, basalt conglomerates, and andesitic to rhyolitic volcanic rocks. The Hazelton Group is intensely hornfelsed. Pyritization is widespread in all rock types. The rocks are well fractured. Argillic alteration is well developed and sericite, quartz, and K-feldspar are secondary. Chalcopyrite, molybdenite, sphalerite, tetrahedrite, and galena are present as disseminations and fracture fillings. Drilling was conducted at the west end of a strong geochemical anomaly for copper and silver, which was found on soils overlying the porphyry which is very poorly exposed. The best intersections obtained in drilling were 120 feet containing 0.2 per cent copper, and short sections containing 0.3 to 0.4 per cent copper.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering Snow 1-6 and 1 inch equals 400 feet covering Fog 1-22; geochemical soil survey, 4 line-miles covering all claims; trenching, 40 feet on Snow 3; surface diamond drilling, six holes totalling 1,505 feet on Snow 1-6.

DOROTHY (No. 57, Fig. D)

LOCATION: Lat. 55° 26'-27.5' Long. 126° 10'-11' (93M/8E)
OMINECA M.D. At approximately 3,000 feet elevation 55 miles northeast of Smithers and about 10 miles west of Takla Landing.
CLAIMS: DOROTHY 233 to 240, 245 to 252, 289, 290, 323 to 329.
ACCESS: By floatplane from Smithers, 55 miles.
OWNER: Twin Peak Mines Ltd.
OPERATOR: DUCANEX RESOURCES LIMITED, 3702 Royal Trust Tower, Box 354, Toronto-Dominion Centre, Toronto, Ont.

WORK DONE: Magnetometer and electromagnetic survey, 12 line-miles covering Dorothy 231-240, 249-252, 280-288, 328, 329.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 169; Assessment Report 2960.

LYNN (No. 163, Fig. D)

LOCATION: Lat. 55° 18' Long. 126° 13' (93M/8E)
OMINECA M.D. At approximately 4,000 feet elevation 4 miles north of the south end of Nakinilerak Lake, 54 miles northeast of Smithers.

CLAIMS: LYNN 1 to 48, 1 to 18 Fractions.

ACCESS: By helicopter from Smithers, 54 miles.

OWNERS: Twin Peak Mines Ltd. and Ducanex Resources Limited.

OPERATOR: DUCANEX RESOURCES LIMITED, 3701 Royal Trust Tower, Box 354, Toronto-Dominion Centre, Toronto, Ont.

DESCRIPTION: Pyritized volcanic rocks and extrusive biotite-feldspar porphyry occur peripheral to an induced polarization-magnetic complex with a few scattered molybdenum-copper soil highs.

WORK DONE: Geochemical soil survey, 260 samples covering Lynn 3-6, 9-12, 17, 24-26, 29, 30, 33; magnetometer and induced polarization survey, 10 line-miles covering same claims; road construction, 2 miles (from Noranda's Nakinilerak camp north to the Lynn camp).

REFERENCE: Assessment Report 3531.

DA-NAK (No. 75, Fig. D)

LOCATION: Lat. 55° 18' Long. 126° 15' (93M/8E)
OMINECA M.D. At elevations of 3,500 to 4,000 feet east of Nakinilerak Lake, 51 miles northeast of Smithers.

CLAIMS: DA, NAK, SNO, WENDY.

ACCESS: By aircraft from Smithers, 51 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Chalcopyrite and bornite occur as disseminations in the matrix and as fracture fillings in biotite-feldspar porphyry and related phases. Alteration consists of pyritization, sericitization, kaolinization, and silicification.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Sno claims; geochemical soil survey, 762 samples covering Nak 3, 5, 9, 11, 13, Sno 1-12, and Sno 1-5 Fractions; magnetometer survey, 15.5 line-miles covering same claims as geochemical survey.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1966, pp. 95-97; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 176; Assessment Report 3311.

VIGIL (No. 123, Fig. D)

LOCATION: Lat. 55° 27.4′-28.4′ Long. 126° 25.8′-29.2′ (93M/8W)
OMINECA M.D. At approximately 4,000 feet elevation 5 miles northwest of Trail Peak, 12 miles northeast of the northern tip of Babine Lake.
CLAIMS: VIGIL 1 to 88.
ACCESS: From Smithers to the north end of Babine Lake by road, 70 miles then by helicopter, 12 miles, to the Vigil group.
OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, Box 100, Smithers.
DESCRIPTION: A feldspar-biotite porphyry stock has intruded Hazelton volcanic and Bowser sedimentary rocks.
WORK DONE: Ground electromagnetic survey, 16.9 line-miles covering all claims.

DRONE (No. 129, Fig. D)

LOCATION: Lat. 55° 37′ Long. 126° 28′ (93M/9W)
OMINECA M.D. At approximately 5,900 feet elevation on Ankwill Creek, 2 miles south of Centre Peak, 15 miles northwest of Takla Landing.
CLAIMS: DRONE 1 to 10.
ACCESS: By helicopter from Takla Landing, 15 miles.
OWNER: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Disseminated chalcocite, bornite, and chalcopyrite occur in an andesitic tuff horizon.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims and 1 inch equals 50 feet covering Drone 7 and 8; surface diamond drilling, two holes totalling 80 feet on Drone 8.

PHI (No. 180, Fig. D)

LOCATION: Lat. 55° 35′-43′ Long. 126° 33′-38′ (93M/10E)
OMINECA M.D. At approximately 2,800 feet elevation on the northeast bank of the Nilkitkwa River, 8 miles southeast of Mount Horetzky and 16 miles north of the village of Babine.
CLAIMS: PHI, totalling 200 claims and fractions.
ACCESS: By helicopter or ski-plane from Smithers, 55 air miles.
OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, Box 100, Smithers.
DESCRIPTION: Feldspar-biotite porphyry dykes intrude Bowser sandstones, shales, and thin coal seams, all with northwest strikes. There is some bleaching of biotite and kaolinization of feldspar in the porphyry.
WORK DONE: Surface diamond drilling, six holes totalling 2,878 feet on Phi 19, 75, 84, 91 and 32 Fraction.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 176.

MT (No. 146, Fig. D)

LOCATION: Lat. 55° 36' Long. 126° 45' (93M/10)
OMINECA M.D. At approximately 3,000 feet elevation 5 miles southeast of Mount Horetzky, between Babine and Nilkitkwa Rivers.
CLAIMS: MT 1 to 40.
ACCESS: By road from Smithers, 70 miles to the north end of Babine Lake, then 20 miles by helicopter to the MT property.
OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, Box 100, Smithers.
DESCRIPTION: A pyritic feldspar-biotite porphyry intrudes sedimentary and volcanic rocks.
WORK DONE: Geochemical soil survey, 278 samples covering all claims.

BRIAN, ADD (No. 160, Fig. D)

LOCATION: Lat. 55° 39' Long. 126° 50' (93M/10)
OMINECA M.D. At approximately 5,000 feet elevation on Mount Horetzky, 40 miles northeast of Hazelton.
CLAIMS: BRIAN 1 to 10, 19 to 24, ADD 1 to 10, 15 to 18, 12 ro 28, VAL 3 to 8, 11 to 16.
ACCESS: By helicopter from Smithers, 70 miles.
OWNER: Earl Dodson.
OPERATOR: HECLA MINING COMPANY OF CANADA LTD. and PACIFIC PETROLEUMS LTD., 2009, 1177 West Hastings Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Chalcopyrite and molybdenite are associated with a quartz diorite intrusion and adjacent hornfels.
WORK DONE: Reconnaissance surface geological mapping, geochemical soil surveying, and magnetometer surveying.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 101; Assessment Report 1841.

GUY, TRI, CON (No. 6, Fig. D)

LOCATION: Lat. 55° 31'-36' Long. 126' 50°-56' (93M/10W)
OMINECA M.D. Two miles west of the Babine River, 35 miles east-northeast of Hazelton.
CLAIMS: GUY, TRI, CON, T, V, totalling 108.
ACCESS: By helicopter from a four-wheel-drive vehicle road at the top of Babine Lake.
OPERATOR: T.V.I. MINING LTD., c/o Guy B. Allen, 2405, 505 Sixth Street SW., Calgary, Alta.
WORK DONE: Geological and geochemical surveys were made in 1970; 646 soil samples were taken at 400-foot intervals.
REFERENCE: Assessment Report 2953.

7A (No. 7, Fig. D)

LOCATION: Lat. 55° 34′ Long. 127° 20′ (93M/11W)
OMINECA M.D. At elevations of 2,300 to 4,000 feet on Thomlinson Creek, 24 miles northeast of Hazelton.

CLAIMS: 7A 1 to 24, 7D 1 to 12.

ACCESS: By helicopter from Hazelton, 24 miles.

OWNER: THE GRANBY MINING COMPANY LIMITED, 507, 1111 West Georgia Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Small amounts of chalcopyrite and molybdenite occur on fractures in a small quartz monzonite intrusion.

WORK DONE: Geochemical survey covering 7A 2, 4, 11, 13, and 14 claims in 1970; geochemical soil survey, 328 samples covering 7A 9, 10, 17-24 and 7D 1-12 and trenching, 400 feet on 7A 1-4 in 1971.

REFERENCE: Assessment Report 3012.

MANSON RIVER 93N

BUZ, AL (No. 131, Fig. D)

LOCATION: Lat. 55° 07.2′ Long. 124° 24.5′ (93N/1W)
OMINECA M.D. On a northeasterly flowing tributary of Wittsichica Creek, 2 miles above its confluence with Chuchi Lake, at an elevation of 3,500 feet.

CLAIMS: BUZ 1 to 5, AL 1 to 16, HOO 4.

ACCESS: By helicopter from Fort St. James, 50 miles.

OWNER: King-Bell Resources Ltd.

OPERATOR: AMBASSADOR MINES LTD., 531, 718 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: Chalcopyrite, pyrrhotite, and pyrite occur in andesite of the Upper Triassic Takla Group.

WORK DONE: Geochemical, magnetometer, and seismic surveys were done.

REFERENCE: Assessment Report 3406.

CAMP, FOE (No. 107, Fig. D)

LOCATION: Lat. 55° 05′ Long. 124° 34′ (93N/2E)
OMINECA M.D. At approximately 3,300 feet elevation on the north shore of Campbell Lake 1 mile south of Witch Lake, 5 miles south of Chuchi Lake.

CLAIMS: CAMP 1 to 52, FOE 1 to 8, 17 to 24.

ACCESS: By floatplane from Fort St. James, 50 miles.

OPERATOR: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary, Alta.

METAL: Copper.

DESCRIPTION: Pyrite and chalcopyite occur as disseminations and along calcite fracture fillings associated with hornblende porphyry dykes cutting andesitic and basaltic tuffs, breccias, and flows. Mineralization is estimated to grade 0.15 per cent copper over limited areas.

WORK DONE: Geochemical soil survey, 680 samples; magnetometer survey, 25 line-miles; induced polarization survey, 5 line-miles; surface diamond drilling, three holes totalling 1,500 feet on Camp 2.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 177; Assessment Reports 3127, 3462.

SRM (No. 58, Fig. D)

LOCATION: Lat. 55° 14' Long. 124° 35' (93N/2E)
OMINECA M.D. At approximately 4,000 feet elevation 4 miles north of west end of Chuchi Lake.

CLAIMS: SRM 1 to 20, 25 to 66, CIR 1 to 20.

ACCESS: By helicopter from Fort St. James, 60 miles.

OWNER: SEREM LTD., 914, 850 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs in a volcanic sequence near the contact of syenite, with K-feldspar, silica, epidote, and chlorite alteration.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 1,000 samples on SRM claims, 182 samples on CIR claims, and 682 traverse samples; magnetometer survey, 23.4 line-miles covering SRM claims; trenching, 180 feet on SRM 9 and 11.

LSD (No. 58, Fig. D)

LOCATION: Lat. 55° 14' Long. 124° 37' (93N/2E, 7E)
OMINECA M.D. Between 4,000 and 6,100 feet elevation 5 miles north of central part of Chuchi Lake.

CLAIMS: LSD, totalling 68.

ACCESS: By road from Fort St. James, 85 miles or by helicopter from Germansen Landing, 40 miles.

OWNERS: HUDSON BAY MINING & SMELTING CO. LTD. and ANGLO AMERICAN CORPORATION OF CANADA EXPLORATION LIMITED, 1695, 555 Burrard Street, Vancouver 1.

DESCRIPTION: The claims are underlain by a syenite stock in contact with Takla volcanic rocks.

WORK DONE: Geochemical soil survey, 749 samples covering 14.32 line-miles on approximately 55 claims.

REFERENCE: Assessment Report 3218.

TOP (No. 105, Fig. D)

LOCATION: Lat. 55° 11.0' Long. 124° 39.2' (93N/2)
OMINECA M.D. Between 2,800 and 4,500 feet elevation on the north side of the west end of Chuchi Lake.

CLAIMS: TOP 1 to 52, POT 1 to 30, 35 to 38, 45 to 50, GRIZ 5 to 7, 9 and 10, 12, 14, 16.

ACCESS: By helicopter from Fort St. James, 60 miles.
OPERATOR: PLATEAU METALS LTD., 101, 535 Thurlow Street, Vancouver 5.
METAL: Copper.
DESCRIPTION: Chalcopyrite, pyrite, and molybdenite occur in fracture zones in dioritic to quartz dioritic rocks.
WORK DONE: Magnetometer and geochemical surveys covering Pot and Top claims.
REFERENCES: Assessment Reports 3409, 3410.

COL (No. 24, Fig. D)

By J. A. Garnett

LOCATION: Lat. 55° 15′ Long. 124° 45′ (93N/2)
OMINECA M.D. Between 3,500 and 4,000 feet elevation 5 miles north of the west end of Chuchi Lake.
CLAIMS: COL 1 to 60.
ACCESS: By road and boat from Fort St. James, 100 miles.
OPERATOR: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
METAL: Copper.
DESCRIPTION:

The Col claims are in an area underlain by intermediate intrusive rocks of the Hogem batholith near its northeastern margin with Takla Group volcanic rocks and 2 miles west of a large body of syenite. Trenching at the initial discovery site revealed quartz lenses with locally abundant bornite within a narrow northwesterly trending fault zone. Bornite and lesser chalcopyrite also occur disseminated in the altered potash feldspathized mesocratic monzonite wallrocks.

Drilling was conducted mainly along another northwest trending, intensely fractured zone, where microscopically penetrative fractures filled with bornite and chalcopyrite occur in pink altered potash feldspathized monzonites.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 400 feet covering all claims; induced polarization and magnetometer surveys, 20 line-miles covering Col 1-12, 14, 16, 17, 19, 22, 31, 32, 40-52, and 55; road construction, 1.5 miles between drill sites, camp, and southeast corner of property; surface diamond drilling, 18 holes totalling 4,846 feet on Col 1, 3-5, 7, 44, and 46.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 178; Assessment Report 3286.

NIGHT HAWK, VECTOR (No. 126, Fig. D)

LOCATION: Lat. 55° 10′ Long. 124° 51.7′ (93N/2)
OMINECA M.D. South of the east end of Tchentlo Lake and west end of Chuchi Lake.
CLAIMS: EM, SAM, SK, RAJ, ALEX, JUDY, BARB, ISA, etc., totalling approximately 280.
ACCESS: By gravel road from Fort St. James to the east end of Chuchi Lake and from there by boat up Chuchi Lake and Nation River.

OWNER: BORONDA MINING CORPORATION LTD., 1101, 510 West Hastings Street, Vancouver 2.

METALS: Copper, iron.

DESCRIPTION: Copper sulphides occur in northwest trending shear zones in granodiorite of the Hogem batholith.

WORK DONE: Geological, electromagnetic, induced polarization, and geochemical surveys (1970); magnetometer, electromagnetic, and geochemical surveys on the southeastern section of the claims (1971).

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, pp. 107, 108 (TAN), Assessment Reports 851, 1056, 1599, 3337, 3338, 3339.

CHUCHI (No. 24, Fig. D)

LOCATION: Lat. 55° 12′ Long. 124° 42′ (93N/2W)
OMINECA M.D. At approximately 3,000 feet elevation extending 3 miles north from the west end of Chuchi Lake, and immediately southeast of the Col claims.

CLAIMS: CHUCHI 1 to 35.

ACCESS: By road and boat from Fort St. James, 90 miles.

OWNER: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.

WORK DONE: Reconnaissance geochemical soil survey, 462 samples (1970); topography mapped; surface geological mapping, 1 inch equals 400 feet covering all claims; induced polarization and magnetometer surveys, 2 line-miles covering Chuchi 1-3, 11, 12, 14, 16, and 25; road construction, 3 miles from lake north up claims (1971).

REFERENCES: Assessment Reports 2932, 3383, 3384.

GUN, BID (No. 132, Fig. D)

LOCATION: Lat. 55° 15′ Long. 124° 50′ (93N/2W, 7W)
OMINECA M.D. At approximately 3,000 feet elevation north of the east end of Tchentlo Lake, 60 miles north-northwest of Fort St. James.

CLAIMS: GUN 1 to 20, BID 1 to 46, MAR 1 to 48, PIT 1 to 18.

ACCESS: By boat from Nation Lake Lodge, 20 miles.

OPERATOR: DENISON MINES LIMITED, 1705, 777 Hornby Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Granodiorite and syenite of the Hogem batholith is locally slightly silicified and chloritized; malachite staining occurs in one location.

WORK DONE: Surface geological mapping, 1 inch equals one-half mile; geochemical soil survey, 1,781 samples; magnetometer survey, 53 line-miles covering all claims; induced polarization survey, 10 line-miles covering Mar 11-20, 34, 36, 38, 40 and Bid 11, 13, 15, 17 claims.

REFERENCE: Assessment Report 3460.

JW (No. 103, Fig. D)

LOCATION: Lat. 55° 05′ Long. 124° 54′ (93N/2W)
OMINECA M.D. At approximately 4,000 feet elevation in the Nation Lakes area, west of Jean Marie Creek.

CLAIMS: JW 1 to 143.

ACCESS: By helicopter from Fort St. James, 50 miles.

OWNER: W. R. BACON, 1720, 1055 West Hastings Street, Vancouver 1, for NBC Syndicate.

METALS: Copper, molybdenum.

DESCRIPTION: Fracture zones in monzonite near a volcanic contact are mineralized with pyrite, chalcopyrite, and molybdenite.

WORK DONE: Road construction, 10 miles (Trembleur Lake to Kazchek Lake); surface diamond drilling, 10 holes totalling 3,025 feet on JW 75, 102, 103, 105-110, 112.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 178.

HEATH, NS (No. 54, Fig. D)

LOCATION: Lat. 55° 16' Long. 125° 10' (93N/6E)
OMINECA M.D. On Nation Mountain near Tchentlo Lake, 65 air miles northwest of Fort St. James, at elevations of 3,000 to 3,500 feet.

CLAIMS: HEATH, NS, totalling 83.

ACCESS: By helicopter or floatplane from Fort St. James, 65 miles.

OPERATOR: SENATE MINING AND EXPLORATION LIMITED, 1300, 355 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The claims are underlain by a highly altered diorite and syenite. Malachite and chalcopyrite stringers are found in both rock types.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 400 feet covering Heath 1-12; magnetometer survey covering Heath 1-12 and NS 18, 21, 36, 39.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 180; Assessment Reports 1965, 2799, 3200, 3201.

HAL (No. 176, Fig. D)

LOCATION: Lat. 55° 27' Long. 125° 10' (93N/6E)
OMINECA M.D. At approximately 5,000 feet elevation near the headwaters of Halobia Creek, 6 miles east of Tsayta Lake.

CLAIMS: HAL 1 to 16, 1 to 6 Fractions.

ACCESS: By helicopter from Germansen Landing, 32 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: The property is underlain by granites and monzonites of the Hogem batholith.

WORK DONE: Geochemical soil and silt survey, 80 samples covering Hal 1-16.

NIK, SAN (No. 182, Fig. D)

LOCATION: Lat. 55° 31' Long. 125° 10' (93N/6E, 11E)
OMINECA M.D. At approximately 4,500 feet elevation 8 miles northeast of Tsayta Lake, at the headwaters of the southern tributary of Kwanika Creek.

CLAIMS: NIK 1 to 70, 1 to 32 Fractions, SAN 1 to 64, 1 to 28 Fractions.
ACCESS: By helicopter from Germansen Landing, 30 miles.
OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.
METALS: Copper, molybdenum.
DESCRIPTION: Chalcopyrite and molybdenite appear to be associated with granitic rocks in presumed contact with volcanic rocks of the Takla Group.
WORK DONE: Topography mapped; geochemical soil survey, 1,050 samples on Nik claims and 170 samples on San claims; magnetometer survey, 23.3 line-miles on Nik claims and 3.1 line-miles on San claims.

ROT (No. 25, Fig. D)

LOCATION: Lat. 55° 22' Long. 125° 11.5' (93N/6E)
OMINECA M.D. Approximately 7 miles east of the south end of Indata Lake on Rottacker Creek.
CLAIMS: ROT 1 to 20.
ACCESS: By helicopter or floatplane.
OWNER: PAT MARTIN, R.R. 2, Prince George.
METAL: Copper.
DESCRIPTION: Chalcopyrite and pyrite occur along fractures in silicified and sheared quartz monzonite.
WORK DONE: Seven miles of line-cutting.
REFERENCES: Assessment Reports 1064 (B claims), 2938.

KW (No. 181, Fig. D)

LOCATION: Lat. 55° 27' Long. 125° 12' (93N/6E)
OMINECA M.D. At approximately 4,700 feet elevation 6 miles east of Tsayta Lake, near the headwaters of Halobia Creek.
CLAIMS: KW 1 to 4, 1 Fraction.
ACCESS: By helicopter from Germansen Landing, 30 miles.
OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.
METALS: Copper, molybdenum.
DESCRIPTION: Chalcopyrite, pyrite, and molybdenite are found on fracture surfaces in monzonite cut by pyroxenitic lamprophyre dykes and syenitic K-feldspar dykelets.
WORK DONE: Surface geological mapping.

GIL (No. 108, Fig. D)

LOCATION: Lat. 55° 20.5'-22' Long. 124° 38'-41' (93N/7E)
OMINECA M.D. At Klawli Lake, 10 miles north of Nation Lakes.
CLAIMS: GIL 1 to 120.
ACCESS: By floatplane from Fort St. James, 71 miles.
OWNER: GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD., 736 Eighth Avenue SW., Calgary 2, Alta.

DESCRIPTION: The claim block area is essentially covered by andesite flows, porphyritic andesites, and associated volcanic rocks, which are intruded (?) by a syenite-monzonite complex. Visible mineralization is restricted to disseminated pyrite primarily in the andesites, but copper, lead, and zinc mineralization is indicated by geochemistry.

WORK DONE: Surface geological mapping, 1 inch equals 1,320 feet covering all claims and 1 inch equals 400 feet covering Gil 15-20, 23-28, 33-40, 43, 44, and 47; geochemical soil survey, 134 line-miles covering all claims.

REFERENCE: Assessment Report 3408.

TEA (No. 106, Fig. D)

LOCATION: Lat. 55° 17′ Long. 124° 46′ (93N/7W)
OMINECA M.D. At approximately 3,250 feet elevation on Klawli River, 6.5 miles north of the east end of Tchentlo Lake.

CLAIMS: TEA 1 to 14, 16, 18, 25 to 30, 32, 34, 36.

ACCESS: By helicopter from Germansen Landing, 36 miles or Fort St. James, 60 miles.

OWNER: PHELPS DODGE CORPORATION OF CANADA, LIMITED, 404, 1112 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs in sheared pyritized andesite.

WORK DONE: Reconnaissance soil and silt survey, 10 to 15 samples.

REFERENCE: *Geol. Surv., Canada*, Paper 45-9, p. 15 (Kohse Copper).

VAL (No. 59, Fig. D)

LOCATION: Lat. 55° 22′ Long. 124° 48′ (93N/7W)
OMINECA M.D. On Valleau Creek just west of Klawli Lake, approximately 75 miles northwest of Fort St. James.

CLAIMS: VAL 1 to 12.

ACCESS: By floatplane from Fort St. James, 75 miles.

OWNER: DRIFTWOOD MINES LTD., 10th Floor, 1055 West Hastings Street, Vancouver 1.

WORK DONE: Line-cutting on Val 7-11.

REFERENCE: Assessment Report 2916.

7C (No. 109, Fig. D)

LOCATION: Lat. 55° 24′ Long. 124° 54′ (93N/7W)
OMINECA M.D. At approximately 4,000 feet elevation near Wudtsi Lake, approximately 13 miles north of the east end of Tchentlo Lake.

CLAIMS: 7C 1 to 12.

ACCESS: By air from Fort St. James, 70 miles.

OWNER: THE GRANBY MINING COMPANY LIMITED, 507, 1111 West Georgia Street, Vancouver 5.

DESCRIPTION: The property is underlain by Takla Group volcanic rocks, and lies immediately southwest of the Germansen batholith.

WORK DONE: *Geochemical soil survey, 364 samples covering all claims; trenching, 100 feet on 7C 5 and 6.*

LOOP (No. 77, Fig. D)

LOCATION: Lat. 55° 42' Long. 125° 13.1' (93N/11E)
OMINECA M.D. At elevations of 4,750 to 5,750 feet on a tributary of Twenty Mile Creek, approximately 22 miles southwest of Germansen Landing.
CLAIMS: LOOP 1 to 16, 1 to 6 Fractions.
ACCESS: By helicopter from Germansen Landing, 22 miles.
OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs as disseminations and fracture fillings in epidotized and chloritized volcanic rocks of the Takla Group.
WORK DONE: Topography mapped; geochemical silt and soil survey, approximately 300 samples covering Loop 1-12 and 1-4 Fractions; magnetometer survey, approximately 8.9 line-miles covering same claims.
REFERENCE: Assessment Report 3269.

BURN (No. 33, Fig. D)

LOCATION: Lat. 55° 31' Long. 125° 14' (93N/11E)
OMINECA M.D. At approximately 4,500 feet elevation 6 miles south of Kwanika Creek, about 18 miles southwest of Germansen Lake.
ACCESS: By four-wheel-drive vehicle road from Kwanika Creek road, 6.5 miles.
OWNER: W. R. BACON, 1720, 1055 West Hastings Street, Vancouver 1, for LUC Syndicate.
METALS: Molybdenum, copper.
DESCRIPTION: Fracture systems in monzonite are mineralized with pyrite, molybdenite, and chalcopyrite. Molybdenite mineralization also occurs in alaskite dykes.
WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 400 feet covering Burn 1, 2, 7-10, 18-20, 36, 38, 43-49; geochemical soil survey, 875 samples covering Burn 1-26, 43-52; magnetometer survey, 13 line-miles covering Burn 5, 11, 13-16, 22-26, 42, 43, 455-50; road construction, 7.5 miles (Kwanika Creek road to Burn claims); trenching, 2,300 feet on Burn 14-16.

HOOEY (No. 76, Fig. D)

LOCATION: Lat. 55° 36.2' Long. 125° 16.2' (93N/11W)
OMINECA M.D. At elevations of 4,500 to 5,700 feet on a tributary of Groundhog Creek, 25 miles southwest of Germansen Landing.
CLAIMS: HOOEY 1 to 16, 1 to 6 Fractions.
ACCESS: By helicopter from Germansen Landing, 26 miles.
OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

Figure 29

BRITISH COLUMBIA DEPARTMENT OF MINES AND PETROLEUM RESOURCES

MARCH 1972

PRELIMINARY GEOLOGICAL MAP OF PART OF HOGEM BATHOLITH, DUCKLING CREEK AREA

0 1 2 3 4 5
SCALE - MILES

0 1 2 3 4 5 6 7 8
SCALE - KILOMETERS

GEOLOGY BY J. A. GARNETT

LEGEND

LOWER JURASSIC (?) TO LOWER CRETACEOUS

OMINECA INTRUSIONS (3 (?) to 9)

HOGEM BATHOLITH

9	LATE DYKES, light brown, orange, grey, aphanitic to fine grained, commonly porphyritic; mainly latite, less commonly dacite, rhyodacite, rhyolite, fine-grained granite
8	QUARTZ MONZONITE, pink to white, medium to coarse grained, leucocratic to holofelsic, mainly hypidiomorphic granular, but locally may be seriate, porphyritic; grades into granite in some areas
7	GRANODIORITE, light grey to white, medium to coarse grained, leucocratic (amphibole > biotite), mainly hypidiomorphic granular
6	DUCKLING CREEK SYENITE COMPLEX, great variety in texture and mafic content; contains both magmatic and metasomatic potash feldspar-rich rocks; although not mapped separately, the Complex consists of three main divisions: (i) brown to orange, medium to coarse-grained, leucocratic to holofelsic intrusive rocks, with pegmatitic and potash feldspar porphyries locally evident; coarser grained core of this division commonly grade into fine-grained aplitic textured borders; quartz veins occasionally cut these rocks (ii) dark grey-pink mottled, fine to medium-grained, mesocratic to melanocratic hybrid potash feldspar rock, generally exhibiting streaky colour bands and distinct alignment of prismatic pyroxene/amphibole and/or potash feldspar phenocrysts (iii) brown to orange, pegmatitic to aplitic dykes and stringers cutting the above divisions as well as Units 2 to 5
6A	POTASH FELDSPAR ENRICHED HYBRID MONZONITE, pink to orange/black mottled grading to grey/black mottled with orange patches and streaks, mainly fine to medium grained, leucocratic to mesocratic; mainly hypidiomorphic granular texture, but shows prismatic mafic alignment near borders with Unit 6 (pyroxene > amphibole > biotite); contacts with Unit 5 are gradational; quartz veins occasionally cut this unit
5	MONZODIORITE-MONZONITE, grey/black mottled, fine to medium-grained, mesocratic (pyroxene > amphibole > biotite), hypidiomorphic granular textures common; quartz-bearing varieties are present; dykes of this unit cut Unit 2 along the Hogem-Takla contact area; accessory magnetite is common in Units 3, 4, and 5
4	DIORITE, dark grey to black, medium-grained, mesocratic (pyroxene > amphibole), hypidiomorphic granular textures
3	BIOTITE-POTASH FELDSPAR PYROXENITE, dark greenish-black mottled, coarse grained; occurs as lenses and irregularly shaped blocks within Units 6 and 6A

UPPER TRIASSIC TO LOWER JURASSIC

2	TAKLA GROUP VOLCANIC ROCKS, mainly dark green tuffs and breccias of andesitic to basaltic composition; occasionally interbedded with flow rocks and cut by pyroxene and feldspar porphyry dykes of similar composition; interbedded dolomites were noted at one locality

AGE UNKNOWN

1	FOLIATED 'BASEMENT' ROCKS, mainly amphibole-biotite-potash feldspar foliates, gneisses, and schists; some garnetiferous and calcareous mica schists have been noted; this unit appears at stratigraphically lower levels enveloped and cut by Unit 6 foliates

SYMBOLS

Geological contacts
approximate
assumed
gradational

Foliation zones

Foliations, measured
inferred

Joints

Primary compositional layers

Possible fault zone

Fault, inferred

Air photograph linear

Fracture trace linear, inferred

Glacial linear

Dolomite layers Dol

Takla volcanic inclusion zones within Hogem batholith

Potash feldspar enrichment K

Pyritized rusty zones Py

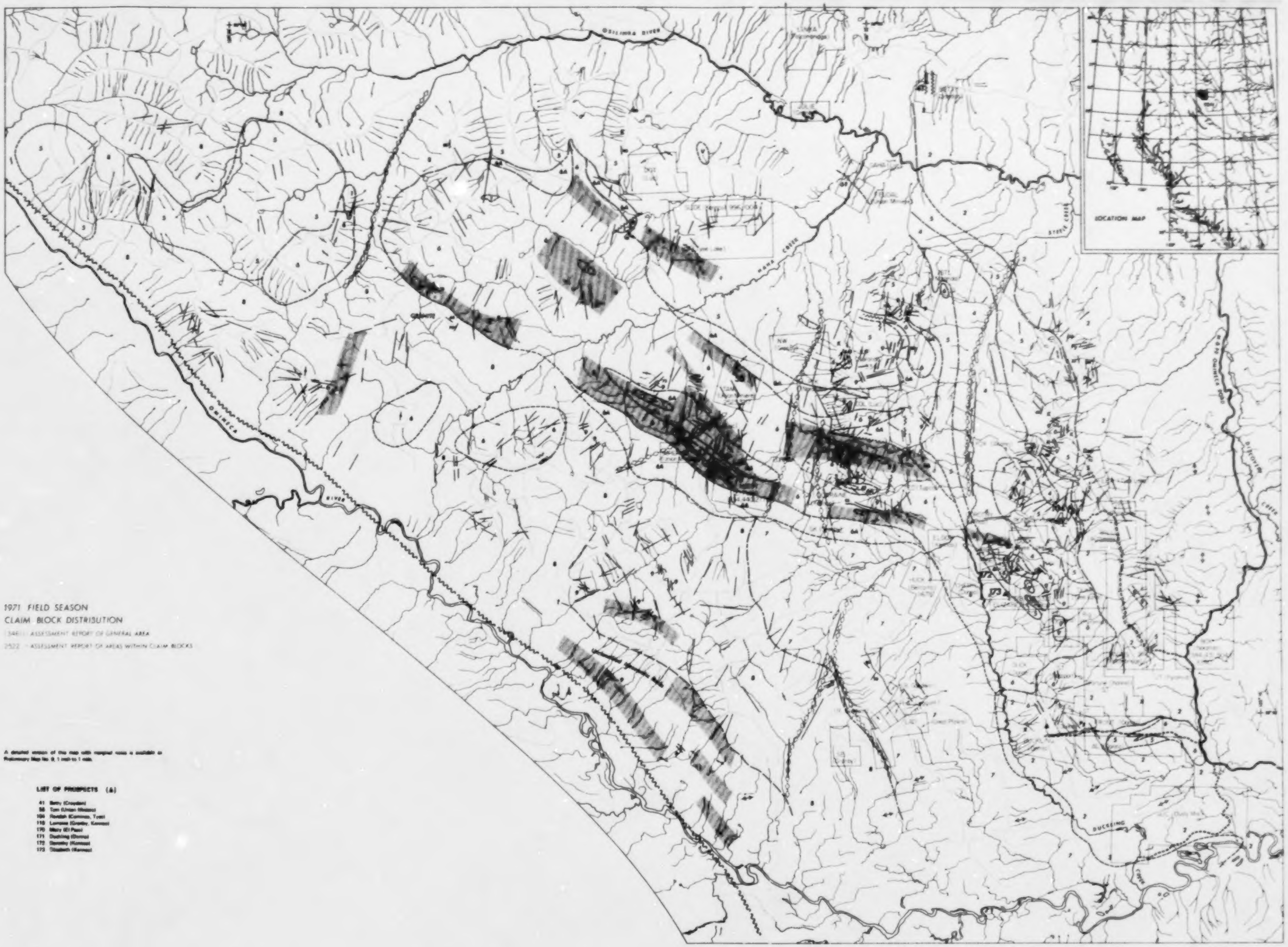
Copper prospect ▲170

Copper showing X

Department of Mines and Petroleum Resources Omineca Road

Four-wheel-drive vehicle road

Ridge lines



1971 FIELD SEASON
CLAIM BLOCK DISTRIBUTION
(3461) - ASSESSMENT REPORT OF GENERAL AREA
2522 - ASSESSMENT REPORT OF AREAS WITHIN CLAIM BLOCKS

A detailed version of this map with marginal notes is available as Preliminary Map No. 9, 1 inch to 1 mile.

LIST OF PROSPECTS (▲)

41	Betty (Croydon)
56	Tam (Union Miniere)
104	Rondah (Cominco, Tyee)
110	Lorraine (Granby, Kennco)
170	Misty (El Paso)
171	Duckling (Dome)
172	Dorothy (Kennco)
173	Elizabeth (Kennco)

DESCRIPTION: Chalcopyrite is found in epidotized monzonites to quartz monzonites of the Hogem batholith.

WORK DONE: Topography mapped; geochemical survey, approximately 340 silt and soil samples and 25 rock samples; magnetometer survey, approximately 9.1 line-miles covering all claims.

REFERENCE: Assessment Report 3268.

TWIN (No. 130, Fig. D)

LOCATION: Lat. 55° 40' Long. 125° 18.5' (93N/11W)
OMINECA M.D. At approximately 5,200 feet elevation at the headwaters of Twin Creek, 25 miles southwest of Germansen Landing and 6 miles south of the Omineca River.

CLAIMS: TWIN 1 to 16, 18, 27, 29, 31, 33, 35, 37, 38, 43, 44.

ACCESS: By helicopter from Fort St. James, 94 miles.

OWNER: NBC Syndicate.

OPERATOR: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Disseminated chalcopyrite and pyrite occur in altered Hogem granodiorite dykes at contacts with Takla volcanic rocks.

WORK DONE: Surface geological mapping, 1 inch equals 40 feet covering Twin 14 and 38 and 1 inch equals 200 feet covering Twin 13-18 and 20; magnetometer survey, 1 line-mile covering Twin 14 and 38; trenching, 100 feet on Twin 14; surface diamond drilling, 10 holes totalling 483 feet on Twin 8, 14, and 38.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 182.

DUCKLING CREEK AREA, HOGEM BATHOLITH

By J. A. Garnett

LOCATION AND ACCESS: The map-area covers approximately 240 square miles mainly in the northeast quadrant of the Manson River Sheet (NTS 93N/13, 14) and partly in the southwest corner of the Aiken Lake Sheet (94C/3, 4). The general area may be reached by the Department of Mines and Petroleum Resources Omineca road, a good gravel road from Fort St. James through Germansen Landing (138 miles) to Aiken Lake (232 miles) and beyond. This road turns north to form the eastern boundary of the map-area at a point approximately 28 miles west of Germansen Landing. Roads suitable for four-wheel-drive vehicles provide further limited access into parts of the main map-area, but most active properties and field parties are serviced by helicopter from Germansen Landing.

PHYSIOGRAPHY: The map-area lies within the Swannell Range, a subdivision of the Omineca Mountains (Holland, 1964). High points in this part of the range are between 6,000 and 6,600 feet elevation. Valley bottoms lie between 3,000 and 4,000 feet elevation. Glacial effects are widespread. Peaks and ridges below 6,000 feet are rounded, whereas peaks at higher elevations are serrate. Cirques are common and best developed on north and northeast-facing ridges. The main valleys have U-shaped profiles and are drift covered. Easterly trending drumlins and troughs paralleling the direction of ice movement are apparent in the Omineca River Valley in the southern part of the map-area (Armstrong, 1949).

GEOLOGICAL SETTING: The core of the Swannell Range is made up of rocks of the Omineca intrusions, which form a composite batholith of Early Jurassic (?) to Early Cretaceous age that intrudes sedimentary, volcanic, and metamorphic rocks ranging from Proterozoic to Early Jurassic. The largest known body of the Omineca intrusions is the Hogem batholith, which extends from Chuchi Lake northwestward for 100 miles. It is bounded to the west by the Pinchi fault zone and varies from 4 to 25 miles wide. The map-area covers the portion of this body bounded roughly by the Omineca River and Pinchi fault, the Osilinka River, and the eastern boundary of the batholith, where Hogem rocks intrude volcanic rocks of the Takla Group. The geological map (Fig. 29) was produced principally by helicopter supported reconnaissance by the writer, and amplified by information from companies actively engaged in regional and property surveys in this area during the 1971 field season. Previous mapping by Armstrong (1949) and Roots (1954) and an unpublished University of British Columbia thesis by Koo (1968) together with assessment reports and information on file with the British Columbia Department of Mines and Petroleum Resources provided excellent background for the present study.

DETAILED GEOLOGICAL DESCRIPTION: The major feature of this portion of the Hogem batholith is an elongate body of syenite which intrudes basic rocks ranging from diorite to monzonite. Lenses of pyroxenite and older schists and gneisses are enveloped by the syenite intrusion. A large differentiated mass of grey to pink granodiorite, quartz monzonite, and granite, with smaller bodies of syenite and monzonite defined within it, lies adjacent to the syenite in the southwest part of the map-area. These major rock types are roughly divided on Figure 29, and Figure 30 illustrates the descriptive nomenclature used, based on estimated proportions of quartz, K-feldspar, plagioclase, and per cent mafic minerals as determined in the field (Streckeisen, 1967).

The *Duckling Creek Syenite Complex* (Unit 6) displays a roughly elliptical shape trending northwest across the central part of the map-area. The Complex varies considerably in grain size, texture, mafic content, and specific mineralogy, the only consistent feature being the presence of microcline-perthite as the dominant feldspar in all thin sections investigated. Although the Complex is not subdivided on the map, three main divisions are indicated in the legend, and, of these, division (ii) correlates in general with mapped foliation zones within Unit 6.

Mappable lenses and small irregularly shaped bodies of pyroxenite (Unit 3) are enveloped and cut by Unit 6 rocks within some of the foliated zones. Unit 3 seems to be spatially associated with lenses of well-developed schists and gneisses* (Unit 1) which are also surrounded and intruded by foliated syenites. Outcrops of Unit 1 and Unit 3 are more evident at lower topographic levels.

[*Gneiss herein refers to rocks exhibiting compositional layering; foliate refers to rocks with sub-parallel planar alignment of minerals; and schist refers to foliated rocks exhibiting fissility.]

Unit 6 rocks clearly intrude a mesocratic diorite-monzodiorite-monzonite sequence in the northeastern quadrant of the area (Units 4 and 5) and Unit 5 monzonites change gradually into the bleached potash-enriched hybrid rocks of Unit 6A along the borders of the syenite complex. Accessory magnetite is common in all of these units.

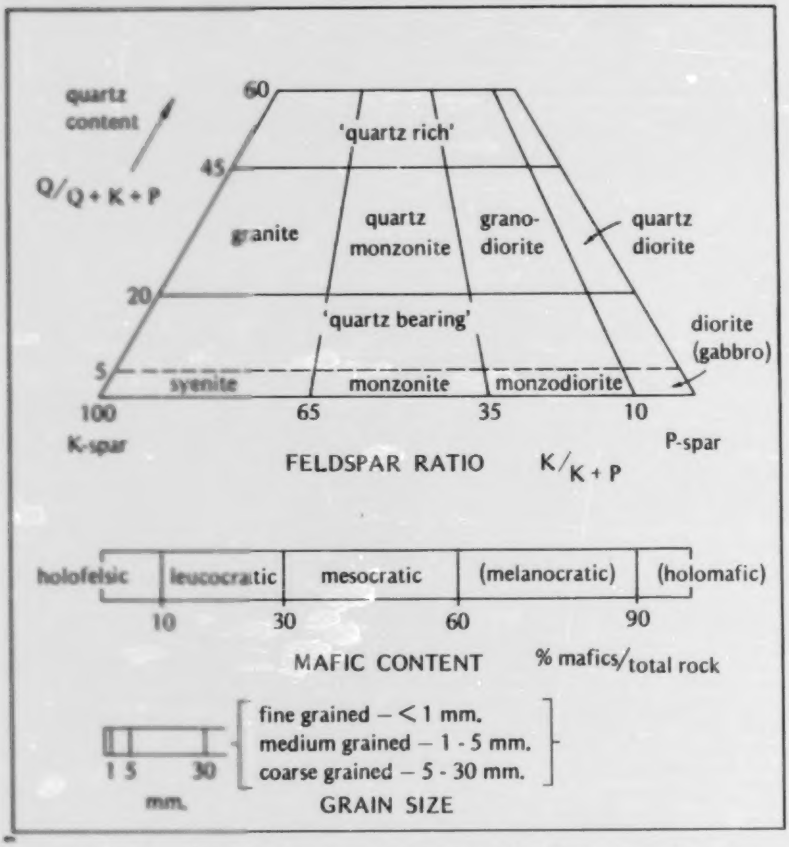

quartz content
Q/Q + K + P
60
45
20
5
'quartz rich'
granite
quartz monzonite
grano-diorite
quartz diorite
'quartz bearing'
diorite (gabbro)
syenite
monzonite
monzodiorite
100
65
35
10
K-spar
P-spar
FELDSPAR RATIO K/K + P
holofelsic
leucocratic
mesocratic
(melanocratic)
(holomafic)
10
30
60
90
MAFIC CONTENT % mafics/total rock
fine grained – < 1 mm.
medium grained – 1 - 5 mm.
coarse grained – 5 - 30 mm.
1 5 30
mm.
GRAIN SIZE

Figure 30. Field classification of plutonic rocks based on estimated actual mineral ratios (modified from A. L. Streckeisen).

Numerous dykes and apophyses of Units 4, 5, and 6 intrude the volcanic rocks of the Takla Group (Unit 2). Takla rocks in this vicinity of the eastern border of the Hogem batholith are mainly dark green tuffs and breccias of andesitic to basaltic composition, interbedded with basaltic flow rocks and cut by pyroxene and feldspar porphyry dykes of similar mineralogy. Primary layering was measured at a few localities striking northerly and dipping west into the batholith at shallow angles. Interbedded dolomite layers were noted north of prospect No. 104. Along the intrusive contact, the volcanic rocks show greyish alteration, intense fracturing, and irregularly spaced pyritized zones.

Plutonic rocks in the southeastern portion of the area, bordering the Pinchi fault, are predominantly leucocratic to holofelsic granodiorites and quartz monzonites (Units 7 and 8). Within Unit 8 are three areas of syenite that are not well defined, and the relative intrusive relationships are unknown. Two areas of Unit 5 rocks are indicated in the northwest corner of the map-area, and a belt of unclassified foliated mesocratic rocks is shown immediately adjacent to the Pinchi fault zone. (This poorly exposed unit could represent a more basic phase of the Hogem batholith that has been cataclastically deformed during fault movements.)

Light-coloured felsic dykes of various compositions and textures (Unit 9) crosscut all other intrusive units. They are not distinguished with respect to composition on the map.

The regional foliation zones that are mainly parallel to the northwest trend of the Unit 6 syenite body are defined in a variety of ways. Unit 1 schists display microscopically penetrative planar fabrics defined by aligned biotite and perthitic feldspar laths. Gneisses show light and dark compositional layering. Steeply plunging lineations defined by elongate biotite clusters and by compositional streaking were measured in some exposures within this unit. In one locality north of Haha Creek, rocks exhibiting crossbedded layers were classified as paragneiss.

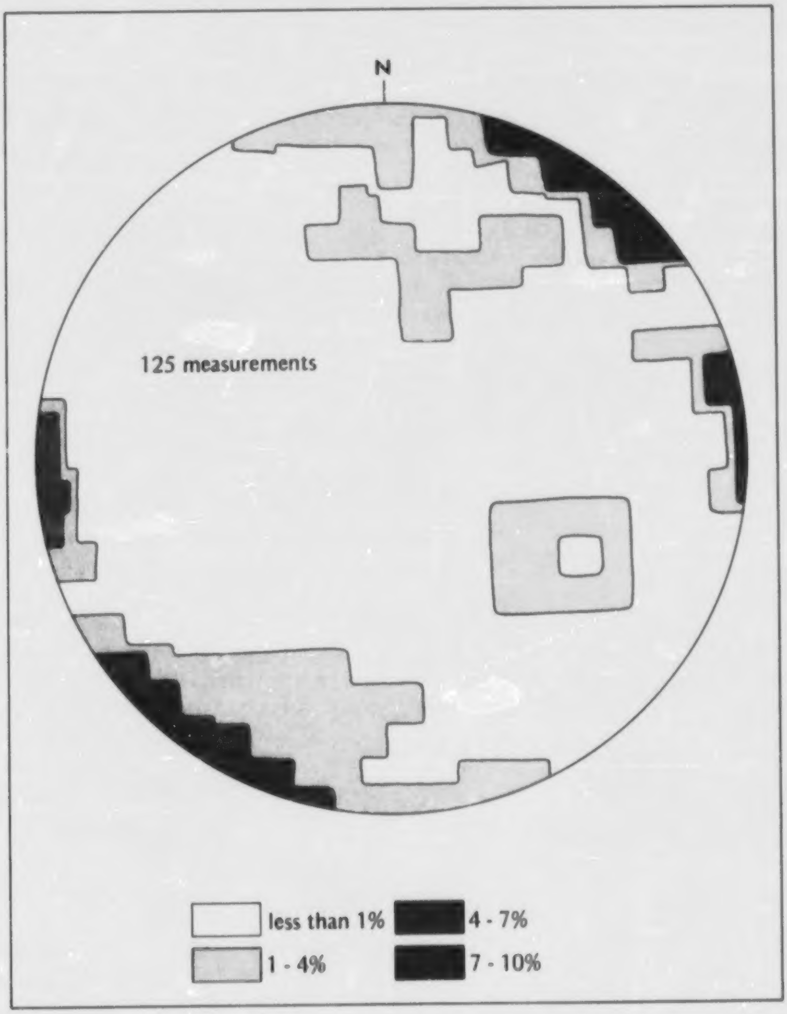


Figure 31. Poles to foliation in rocks within Hogem batholith, Duckling Creek area.

Near the border of Unit 6, Unit 6A rocks exhibit a foliation defined by alignment of prismatic pyroxene and/or K-feldspar phenocrysts. Within the Complex, foliations are similarly defined with the exception of some in Unit 6 (ii) hybrid rocks, where irregular, streaky, migmatitic layers take the place of the previously described foliations. Northerly striking mineral alignment foliations were noted in intrusive rocks along the Hogem-Takla contact and also in intrusive rocks in the northwest quadrant of the map-area. Figure 31 illustrates these trends.

Measurements of joints in the plutonic rocks indicate no strong regional trends. Figure 32 shows a weak maximum of northeast trending, steeply dipping fractures. These steeply dipping fractures were replotted on a frequency histogram (Fig. 33) for direct comparison with the histogram of readily observed airphoto linears (Fig. 34). The strong northerly trend of the linears contrasts sharply with the more random distribution of measured joints.

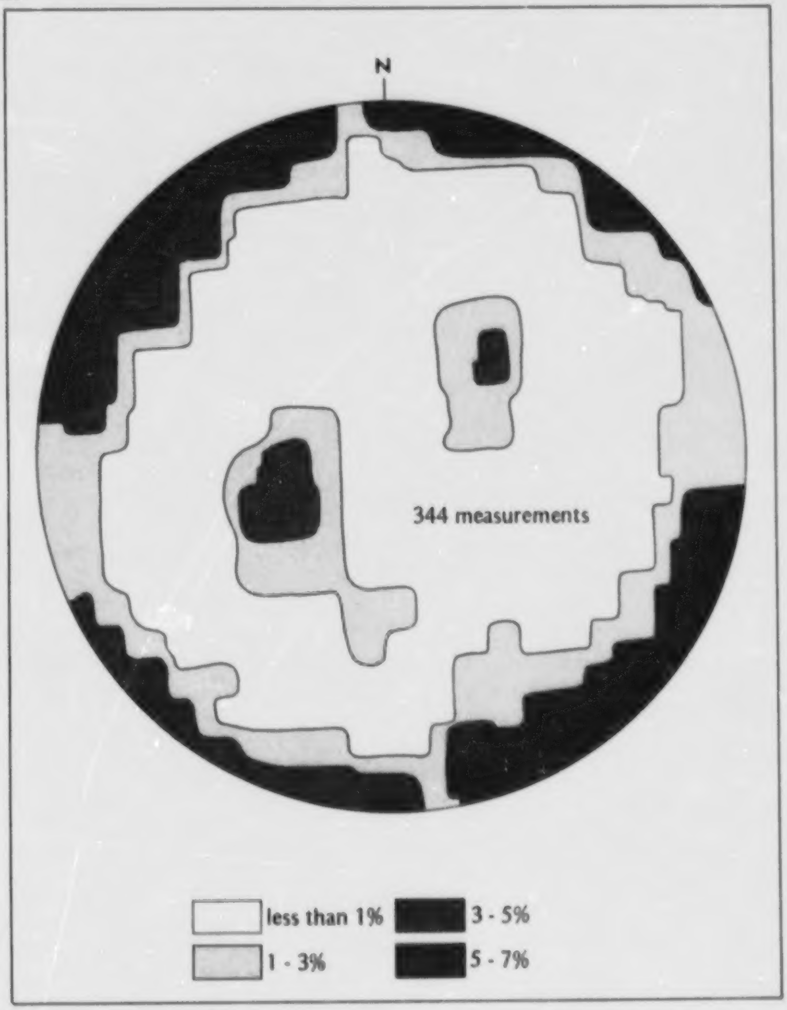


Figure 32. Poles to measured joints, Hogem batholith, Duckling Creek area.

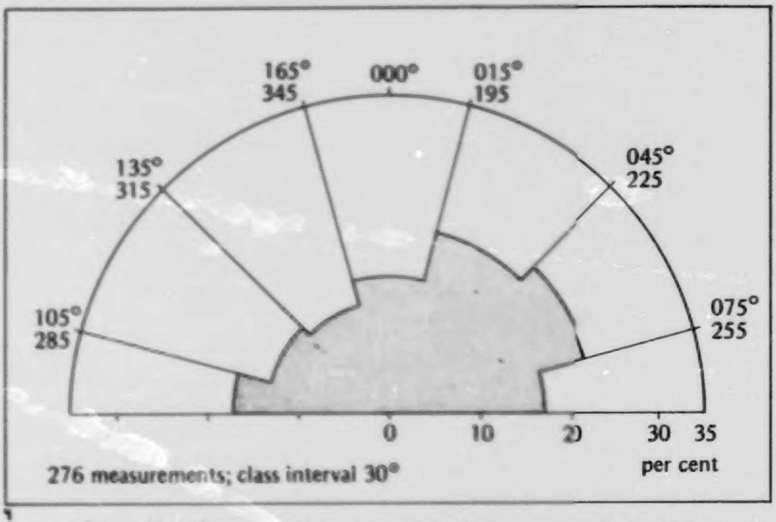


Figure 33. Frequency histogram; steeply dipping tectonic (bedrock) joints within Hogem batholith, Duckling Creek area

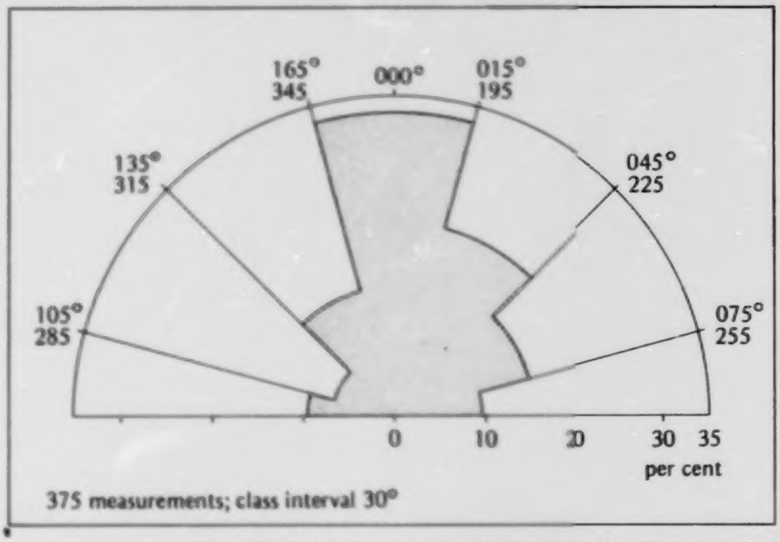


Figure 34. Frequency histogram; airphoto (fracture trace) linears within Hogem batholith, Duckling Creek area.

Good criteria for faulting were rarely noted, and faults were mapped only where some evidence of brecciation, alteration, rock type change, or slickensides were observed.

COPPER MINERALIZATION: Indications of mineralization in the form of malachite-stained fractures and rare disseminated chalcopyrite grains are widespread in the vicinity of the Duckling Creek Syenite Complex. Because of this ubiquitous distribution, an attempt has been made to quantify the occurrences noted on the map (Fig. 29). *Prospects* are numbered and indicate where mineralization has been extensive enough to warrant detailed development work in the past. ***Showings*** are marked with a cross and represent small mineral occurrences that may be worth more than a cursory examination. Numerous other localities displaying slight indications of copper mineralization have been omitted.

Two types of mineralization are evident. The first type is spatially associated with the Hogem-Takla contact zone and has copper mineralization in the form of massive stringers and disseminations in altered fractured zones within the volcanic rocks (No. 171, No. 41) as well as disseminations in syenite and monzonite dykes cutting Takla volcanic rocks (No. 104). Both pyrite-chalcopyrite and chalcopyrite-bornite mineralization occurs. As previously mentioned, rusty pyritized zones within Takla volcanic rocks are quite common along this contact.

The second type is spatially associated with the Duckling Creek Syenite Complex and has disseminated sulphides occurring most commonly in Unit 6 (ii) hybrid rocks (No. 110, No. 170, No. 55) and in K-feldspar-enriched stringers and fracture fillings cutting Units 6 and 6A. Chalcopyrite and less abundant bornite are dominant sulphides, and magnetite is a common accessory. Disseminated chalcopyrite and bornite grains show a strong affinity for mafic grains in thin section. Small faults within the Complex exhibit malachite-azurite-stained fractures and sparsely distributed chalcopyrite mineralization in fault breccias (No. 177). Other fractured zones have minor pyrite-chalcopyrite mineralization in siliceous rocks, quartz veins, and fine leucosyenite stringers (No. 173).

Figure 35 shows the location of the major prospects indicated on Figure 29 in relation to claim blocks existing in this area as recorded in Victoria at April 1, 1972. Geographic positions of claim blocks have been revised as a result of information gained in the field and from assessment reports but still represents only an approximation of the actual claim block configuration.

J. M. Black first reported on some of these occurrences in the 1949 Annual Report of the Minister of Mines. Brief geological descriptions are included in summaries of properties within the map-area that follow this introduction.

REGIONAL IMPLICATIONS: The consistent northwest parallelism exhibited on an outcrop scale by Unit 6 foliations and on a regional scale by foliation belts associated with Unit 6 borders and areas around Unit 1 foliates, together with the northwest elongate configuration of the syenite body, suggest that its emplacement was controlled by an underlying pre-existing structural trend. This direction correlates with linear magnetic highs on the aeromagnetic map available for part of the area.

The presence of the older rocks of Unit 1 can be interpreted in many ways. Takla volcanic xenoliths of various sizes have been recorded within the intrusive rocks of the map-area, and it is possible that Unit 1 represents pendant-type bodies of similar age. However, the Unit 1 schists and gneisses show strong planar and linear, microscopically penetrative fabrics that are best interpreted as of tectonic origin, and indicative of deformation much stronger than is evident in Takla Group rocks. The Unit 1 lenses might better be interpreted as pendants of older formations caught up and oriented in the flow of Hogem intrusions. The consistent regional trend of these lenses and their exposure at lower topographic levels might also indicate increased distribution at depth and the possibility that Unit 1 rocks are inliers of an extensive underlying sequence, originally enveloped by the Hogem batholith, and now partially exposed by erosion through the base of the intrusion. The relative stratigraphic position of such older rocks is unknown, but it is interesting to note that the strike, dip, and plunge of Unit 1 fabrics parallel the direction of the isoclinally folded Cache Creek layers immediately west of the Pinchi fault.

The northwest trend demonstrated by foliations is not reflected in the airphoto linear analysis, where a strong northerly maximum is evident (Fig. 34). *Fracture trace linears* indicated on the map were inferred from connecting shorter linear segments and from limited geologic information. These linears do not appear to offset the continuity of Hogem rocks. Also, the airphoto linear pattern does not correlate with the bedrock joint pattern measured in the intrusive rocks. It is possible that the linear maximum is in part defined by upward transmission of brittle structural features that are part of the structural regime of 'basement' rocks underlying this portion of the Hogem batholith.

Only one absolute age date is available at present from within the map-area. J. H. Koo (1968) separated biotites from a mafic-rich portion of Unit 6 rocks immediately north of prospect No. 110 which gave a K-Ar date of 170 ± 8 million years (Early Jurassic). This was interpreted as representing the minimum age of the syenitic rocks and the maximum age of sulphide mineralization at the Lorraine property. He also suggested that this date marked the division of two separate phases of the Hogem batholith.

The existence of two distinct phases (originally put forward by Roots, 1954) remains a valid hypothesis in the light of the recent mapping. Units 4 to 6 could represent an alkaline magma differentiation, culminating in syenite intrusions and potash enrichment of wallrocks and accompanied by deuteric copper mineralization. The Unit 3 pyroxenites could be a cumulate phase of such a sequence. It should be noted that syenite dykes cut other syenites throughout Unit 6, indicating at least two separate pulses of syenite intrusive activity. Units 7 and 8 could represent a later differentiated intrusion, less mafic and more quartz rich than Units 4 to 6, and essentially barren of copper mineralization in this area.

The mixed K-feldspar-rich rocks of Unit 6, the potash enrichment within adjacent units, and the presence of soda pyroxene (aegirine-augite) as the dominant mafic in certain syenites, have led to the interpretation that the syenite complex around the Lorraine property was formed by alkali metasomatic processes (fenitization)(Koo, 1968). Fenitization commonly affects country rocks around carbonatite-alkaline complexes. Carbonates are occasionally noted as accessory minerals in Unit 6 rocks, and some Unit 1 schists are calcareous. A carbonatite-fenite petrogenesis could evolve from the incorporation of older formations containing calcareous members by an alkaline magma.

REFERENCES: Armstrong, J. E. (1949), Fort St. James Map-area, Cassiar and Coast Districts, British Columbia, *Geol. Surv., Canada*, Mem. 252; Black, J. M. (1949), Duckling Creek, *Minister of Mines, B.C.*, Ann. Rept., pp. 98-102; Garnett, J. A. (1972), Preliminary Geological Map of Part of the Hogem Batholith, Duckling Creek Area, *B.C. Dept. of Mines & Pet. Res.*, Preliminary Map No. 9; Geophysics Map 5286G (1970), Ogden Creek, British Columbia, Sheet 93N/13, Aeromagnetic Series, *Geol. Surv., Canada* and *B.C. Dept. of Mines & Pet. Res.*; Holland, Stuart S. (1964), Landforms of British Columbia, A Physiographic Outline, *B.C. Dept. of Mines & Pet. Res.*, Bull. No. 48; Koo, Ja Hak (1968), Geology and Mineralization in the Lorraine Property Area, Omineca Mining Division, British Columbia, *U.B.C.*, unpublished M.Sc. thesis; Roots, E. F. (1954), Geology and Mineral Deposits of Aiken Lake Map-area, British Columbia, *Geol. Surv., Canada*, Mem. 274; Streckeisen, Albert L. (1967), Classification and Nomenclature of Igneous Rocks (Final Report of an Inquiry), *Neues. Jahrb, Mineralogie Abh*, 107, 2, pp. 144-214.

BOX (No. 125, Fig. D)

LOCATION: Lat. 55° 51'-53' Long. 125° 11.5'-13.5' (93N/14E)
OMINECA M.D. At approximately 3,000 feet elevation straddling the Uslika Lake road, 24 miles northwest of Germansen Landing.
CLAIMS: BOX 1 to 42, 1 to 18 Fractions.
ACCESS: By road from Germansen Landing, 24 miles.
OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs disseminated in granitic dykes and in volcanic rocks.
WORK DONE: Topography mapped; geochemical silt survey, 63 samples; geochemical soil survey, 450 samples; magnetometer survey, 13.8 line-miles covering Box 1-6, 15-20, 29-40 and 1-3, 7-9, 13-17 Fractions.
REFERENCES: Assessment Reports 384, 431, 504 (Valley), 3340.

DUCKLING (No. 171, Fig. D)

By J. A. Garnett

LOCATION: Lat. 55° 52' Long. 125° 15' (93N/14W)
OMINECA M.D. Between 3,200 and 5,000 feet elevation, 28 miles west of Germansen Landing, 6 miles north of the confluence of Duckling Creek and Omineca River.
CLAIMS: DUCKLING 1 to 6, 11, DUCKLING 1 to 6 Fractions, DUCK 2.
ACCESS: By road 32 miles west of Germansen Landing (28 miles by Omineca road, 4 miles by four-wheel-drive vehicle road).
OPERATOR: DONNA MINES LTD., 642 Clark Drive, Vancouver 6.
METAL: Copper.
DESCRIPTION:

This claim block is within an area of Takla Group volcanic rocks bordered to the north, west, and southeast by intrusive rocks of the Hogem batholith. Reconnaissance mapping of the general area indicated two significant features: (1) pyroclastic and volcanic members of the Takla Group are cut by numerous pyroxene porphyry 'feeder' dykes which are pre-Hogem intrusion in age; (2) epidotization, potash feldspathization, intense fracture concentration, and the presence of rusty pyritized zones within these Takla Group rocks indicate their proximity to the Hogem contact. Dykes of fine to medium-grained feldspar (syenite) porphyry also cut the volcanic rocks in this area, and along with the presence of an outlier of monzonite intruded by syenite to the southeast of this claim block, indicates that the contact between the Hogem batholith and the Takla volcanic rocks is at a shallow depth in this area. This suggestion has been substantiated by drilling near the discovery outcrop on the Duckling property, where shallow angle holes passed through a fractured, altered contact zone into massive syenite porphyry.

Trenches cut at right angles across the easterly trending discovery outcrops indicated a lenticular fracture system in green altered andesite to basalt containing massive chalcopyrite, pyrrhotite, and pyrite. Best mineralization encountered was reported as 12.54 per cent copper over 4 feet. The trenches indicated that this massive vein narrowed considerably at a depth of 15 feet. Localized zones of similar massive mineralized fracture filling occurred over narrow widths along a trench length of 500 feet. Three diamond-drill holes (1,000 feet) drilled north at 45 degrees to intersect this zone during the 1970 field season indicated that it is discontinuous along strike and at depth. Three other mineralized areas have now been exposed along the western projection of this fracture zone. Trenches at one area on the eastern slope of Duckling Creek outlined a 140-foot by 30-foot mineralized zone in altered syenitic rocks.

WORK DONE: Magnetometer survey, geochemical survey, trenching.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 185; Preliminary Map No. 9; Assessment Reports 3536, 3537.

HAGGIS (No. 27, Fig. D)

LOCATION: Lat. 55° 51′ Long. 125° 16′ (93N/14W)
OMINECA M.D. At elevations of 4,000 to 5,000 feet on Roy Creek, 22 miles northwest of Germansen Landing and 105 miles north of Fort St. James.
CLAIMS: HAGGIS 1 to 8.
ACCESS: By good gravel road approximately 31 miles west of Germansen Landing; a four-wheel-drive vehicle road passes through the property.
OWNER: FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Disseminated chalcopyrite and pyrite occur in Takla Group volcanic rocks close to their contact with the Hogem batholith.
WORK DONE: Geochemical soil survey, 187 samples covering all claims.
REFERENCE: Assessment Report 3140.

BILL, BIG (No. 26, Fig. D)

LOCATION: Lat. 55° 55′ Long. 125° 16′ (93N/14)
OMINECA M.D. Twenty-three miles west-northwest of Germansen Landing.
CLAIMS: BILL, BIG, JT, SID, totalling 139.
ACCESS: Via Department of Mines and Petroleum Resources Omineca road 30 miles from Germansen Landing, then by four-wheel-drive vehicle road for 3 miles.
OWNER: Newco Ventures Ltd.
OPERATOR: PYRAMID MINING CO. LTD., 640, 890 West Pender Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The area is underlain by Takla Group volcanic rocks cut by numerous intermediate dykes from the nearby Hogem batholith. Disseminated pyrite and chalcopyrite occur in altered volcanic rocks and in certain dykes.
WORK DONE: Line-cutting, geochemical and magnetometer surveys, and road construction were done during 1970 and 1971 on the western portion of the claim group.
REFERENCE: Assessment Report 3219.

DUCK, DUKE, RONDAH (No. 104, Fig. D)

By J. A. Garnett

LOCATION: Lat. 55° 52' Long. 125° 18' (93N/14W)
OMINECA M.D. Between 3,700 and 6,200 feet elevation in the Duckling Creek area, 16 miles west-northwest of Germansen Landing.

CLAIMS: DUCK, DUKE, RONDAH, totalling 160.

ACCESS: By the Uslika Lake road from Germansen Landing, 27 miles.

OWNER: Tyee Lake Resources Ltd.

OPERATORS: MARUBENI-IIDA (CANADA) LTD. and COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.

METALS: Copper, molybdenum, gold.

DESCRIPTION:

The area occupied by this claim block is underlain by diorites (Unit 4) and monzodiorites and monzonites (Unit 5) intruded by syenites [Unit 6(i)]. Dykes of all these units cut basic pyroclastic and volcanic members of the Takla Group along the eastern boundary of the property. Xenoliths of basic rock (Takla Group ?) are common in certain areas within the intrusive complex. Two generations of syenite intrusion are clearly documented in outcrop near the Dorel ridge in the central portion of the Duck claims.

Mineralization on the property consists mainly of pyrite, chalcopyrite, and minor bornite disseminated and in fractures within potash feldspathized monzonitic rocks. In the original discovery area on the Rondah claims, five diamond-drill holes (3,000 feet) were completed in 1970 to explore coincident soil, magnetometer, and induced polarization anomalies. The most significant mineralization reported was a 180-foot section containing 0.5 per cent copper and 0.02 per cent molybdenite. The copper occurs mainly in a feldspathized monzonite dyke cutting altered pyroxene porphyries of the Takla Group. The sulphide minerals are spatially associated with mafic alteration minerals (amphibole, biotite) and with K-feldspar-enriched zones. Magnetite is a common accessory. Pyrite and magnetite with rare chalcopyrite were noted in the altered voclanic porphyries adjacent to the dyke.

Other geochemical and induced polarization anomalies on the Rondah and Duck claims were investigated by trenching and percussion drilling (10 holes, 2,000 feet) during the 1971 field season. Mineralization, where encountered, occurred in fractures in monzonite and in stringers of syenite filling fractures in more basic rocks.

WORK DONE: Topography and surface workings mapped; surface geological mapping, 1 inch equals 400 feet and geochemical soil survey, 1,000 samples covering all claims; induced polarization survey, 12 line-miles covering 60 per cent of the claims; road construction, 7.5 miles (west of Rondah Creek); trenching, 5,300 feet; percussion drilling, 10 holes totalling 2,000 feet.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 185; Preliminary Map No. 9; Assessment Reports 366, 378 (Dorel), 430, 532 (Rhonda).

ST (No. 147, Fig. D)

LOCATION: Lat. 55° 50' Long. 125° 15'-19' (93N/14W)
OMINECA M.D. At approximately 3,500 feet elevation 25 miles west of Germansen Landing.

CLAIMS: ST 11 to 43, 46, 48, 50, 52, 54, 56, 58.

ACCESS: By road from Germansen Landing, 25 miles.
OWNER: FORTUNE CHANNEL MINES LTD., 145, 890 West Pender Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Geology is described in report on Passport Mines Ltd.'s ST property.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering ST 31-38, 50, 52, 54, 56; geochemical soil survey, 10 line-miles covering the same claims; trenching, 100 feet on ST 32.
REFERENCE: Assessment Report 3461.

ST (No. 147, Fig. D)

LOCATION: Lat. 55° 51' Long. 125° 20' (93N/14W)
OMINECA M.D. At approximately 4,000 feet elevation 27 miles northwest of Germansen Landing.
CLAIMS: ST 49, 51, 53, 55, 57, 59, 60 to 84, ST 152 Fraction.
ACCESS: By road from Germansen Landing, 27 miles.
OWNER: PASSPORT MINES LTD., 642 Clark Drive, Vancouver 6.
METALS: Copper, molybdenum.
DESCRIPTION: Copper and molybdenum occur as shear zone fillings within the contact phases between a monzonite intrusion and a gabbroic border phase of the Hogem batholith or hornfelsic equivalent of the Takla volcanic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering ST 51, 53, 55, 57, 62-69; geochemical soil survey, 8 line-miles covering same claims; road construction, one-half mile on ST 49 and ST 152 Fraction.

DOROTHY (No. 172, Fig. D)

By J. A. Garnett

LOCATION: Lat. 55° 53' Long. 125° 20' (93N/14W)
OMINECA M.D. On east slope of Duckling Creek, 10 miles upstream from its confluence with the Omineca River.
ACCESS: By helicopter from Germansen Landing.
OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, One Bentall Centre, Vancovuer 1.
METAL: Copper.
DESCRIPTION:

The Dorothy-Elizabeth claims were originally staked in 1948 for Northwestern Explorations, Limited. At that time, copper-bearing float was discovered at intervals over a distance of 1,100 feet on three talus slides along the heavily wooded eastern slope of Duckling Creek (Dorothy showings). Approximately 3,500 feet southeast of the Dorothy talus slides, the Elizabeth showing was discovered. During 1949, Kennco Explorations, (Western) Limited trenched these occurrences and drilled four diamond-drill holes (1,449 feet) on the Dorothy showing. A biogeochemical survey using tree samples was carried out over this general area in 1951 (Assessment Report 73). The next recorded work was done in 1961, when geological and geochemical surveys were made on the Dorothy claim group (Assessment Report 366). In 1962 and 1963, induced polarization and magnetometer surveys were completed on portions of the Dorothy and Elizabeth properties (Assessment Reports 432, 511, 513). No further detailed work has been reported.

The following geological descriptions are based mainly on information available from assessment reports and from J. M. Black's description of these properties in the Annual Report of the Minister of Mines for 1949, page 98, although the Elizabeth showing was visited briefly by the present writer during the 1971 field season.

The area is underlain by intrusive rocks which vary locally from diorite to quartz diorite (Units 4, 5 ?). The diorite contains abundant accessory magnetite, and except for minor amounts of epidote, shows little alteration. Weak gneissosity, striking 080 degrees to 090 degrees and dipping steeply south, was noted in a few outcrops. A 300-foot-wide fine-grained quartz plagioclase dyke trends northerly over most of the property length. Its texture varies from aplitic near its chilled margins, to medium grained and xenolithic in the central portions. A minor amount of pyrite is disseminated in parts of this dyke. Narrow stringers of pegmatite cut both the dyke and the diorite in outcrops at the northern edge of the property. Copper mineralization, where exposed, occurs as irregularly disseminated grains, blebs, and small stringers of chalcopyrite and pyrite, with minor amounts of bornite, covellite, pyrrhotite, molybdenite, sphalerite, and galena.

The results of drilling indicated that copper mineralized sections were irregular silicified areas within the diorite, and that these sections had little continuity in strike or dip. The average grade of a few sections as much as 50 feet long varied from 0.5 to 1.0 per cent copper.

WORK DONE: No recent work.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1949, p. 98; *B.C. Dept. of Mines & Pet. Res.,* Preliminary Map No. 9; Assessment Reports 73, 366, 432, 511, 513.

ELIZABETH **(No. 172, Fig. D)** By J. A. Garnett

LOCATION: Lat. 55° 52.5' Long. 125° 20' (93N/14W)
OMINECA M.D. On the east slope of Duckling Creek, 3,500 feet southeast of the Dorothy.

ACCESS: By helicopter from Germansen Landing.

OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, One Bentall Centre, Vancouver 1.

METAL: Copper.

DESCRIPTION: This occurrence is in a northerly trending fault zone several feet wide consisting of brecciated and highly altered intrusive rock. Fragments within this breccia zone are cemented by malachite, azurite, cuprite, and chrysocolla. Similar copper mineralization occurs within a network of tiny fractures and seams in K-feldspar-enriched wallrock adjacent to the fault. Trenches revealed a lack of continuity to mineralization at depth and along the strike of the fault zone.

WORK DONE: No recent work.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1949, p. 98; *B.C. Dept. of Mines & Pet. Res.,* Preliminary Map No. 9; Assessment Reports 73, 432, 511.

LORRAINE **(No. 110, Fig. D)** By J. A. Garnett

LOCATION Lat. 55° 55' Long. 125° 26' (93N/14W)
OMINECA M.D. At approximately 5,500 feet elevation 2.5 miles north of headwaters of Duckling Creek, 35 miles northeast of Germansen Landing.

CLAIMS: LORRAINE 1 to 12, LOREX 1 and 2, GK 1 to 108.

ACCESS: By helicopter from Germansen Landing, 35 miles.

OWNERS: Kennco Explorations, (Western) Limited and The Granby Mining Company Limited.

OPERATOR: THE GRANBY MINING COMPANY LIMITED, 507, 1111 West Georgia Street, Vancouver 5.

METAL: Copper.

DESCRIPTION:

The predominant rock type on the Lorraine property is a medium-grained, brown to orange-weathering syenite composed mainly of K-feldspar, with streaks and bands of mafic minerals giving the rock a migmatitic texture [Unit 6(ii)]. The mafics have been identified optically as aegerine-augite, hornblende, and biotite. It is evident that certain of the rocks in this area have been altered by later syenite intrusions. Patches of fresh grey monzonite are surrounded by orange bleached zones having increased K-feldspar content (Unit 6A). The intensity of potash feldspathization decreases to the north and south of the claim block, but within the Lorraine property, patches of fresh unaltered rock are rare and not mappable. The previously mentioned streaking within the syenite complex, along with planar alignment of prismatic mafics, defines a northwest trending foliation that dips moderately to the southwest in the eastern portion of the claim block, but becomes steep to vertical in dip toward the west.

Blocks of coarse-grained dark green/black biotite pyroxenite (Unit 3) occur within the syenite and also appear to have been subjected to potash metasomatism as is evidenced by the presence of large porphyroblasts of microperthite in some specimens. Both the migmatitic syenite and the pyroxenite are cut by aplitic to pegmatitic leucocratic syenite dykes [Unit 6(iii)]. Fine-grained dykes of more basic composition also cut these units (Unit 9). The major dykes consistently strike northeast, parallel to a strong steeply dipping joint pattern. Fracture-filling fibrous blue material in the vicinity of a large pyroxenite block has been identified as riebeckite. In the southern part of the claim block, a soft white mineral encrusted on fractures was identified as stilbite.

The most prominent topographic feature on this property is a three-quarter-mile-long northwest trending spur between two cirque valleys. Along the southwest facing slopes of the spur numerous large areas of malachite-stained fractures are clearly visible from several hundred yards away. Finely disseminated chalcopyrite and minor bornite can be found in talus blocks and in place along this face and on the northeast facing slope of the same spur, but by far the bulk of copper mineralization noted along the spur is in the form of malachite and minor azurite. Specimens showing significant primary copper mineralization are medium-grained pink to grey-black migmatitic syenites, and chalcopyrite and bornite grains show a strong affinity for the mafic-rich portions of these rocks. Chalcopyrite grains were noted along malachite-stained fractures, and some mineralized fractures were seen to be filled with fine leucosyenite stringers. Magnetite and minor hematite are common accessories in the syenitic rocks, and veins of magnetite were noted. Occasional quartz stringers cut Unit 6(ii). Most are barren, but in rare cases they contain chalcopyrite, bornite, or pyrite. Fine calcite-filled fractures also cut Unit 6(ii) and are post-ore in age. The mainly northeast trending syenite dykes do not seem to be mineralized. Abundant disseminated pyrite occurs in paraschists in the cirque valley northeast of the spur (Unit 1).

Kennco Explorations, (Western) Limited drilled five diamond-drill holes into this spur in 1949 to test for mineralization at depth. Details are not available but sections of mineralization between 0.5 per cent and 1.0 per cent copper were erratically distributed. Two other short holes were drilled at this time in the valley to the west of the spur. The Granby Mining Company Limited drilled eight diamond-drill holes in 1970 (4,593 feet) and 14 diamond-drill holes in 1971 (5,060 feet), mainly testing for possible ore extensions along the southwest slope of the spur and farther west into the cirque valley. Again, details are not available, but results were inconclusive as difficulty was encountered in establishing continuity between good drill sections of significant mineralization (0.4 per cent to 1.0 per cent copper).

A road is planned to link the Lorraine with the existing road from the Tyee Lake Resources Ltd.'s property to the main Omineca road. Detailed work is expected to continue during the 1972 field season on the main ore zone as well as on the surrounding GK claims.

WORK DONE: Claims, topography, and surface workings mapped; surface geological mapping, 1 inch equals 400 feet covering most claims; geochemical soil survey, 2,500 samples covering all claims; magnetic survey, approximately 100 line-miles covering all claims; surface diamond drilling, 14 holes totalling 5,060 feet on Lorraine 2 and 4.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 184; Preliminary Map No. 9; Assessment Reports 377, 429, 506.

TAM (No. 55, Fig. D)

By J. A. Garnett

LOCATION: Lat. 55° 57.5' Long. 125° 30' (93N/13E, 14W)
OMINECA M.D. Six miles west of Steele Creek, approximately 40 miles northwest of Germansen Landing.

CLAIMS: TAM 1 to 20.

ACCESS: By helicopter from Fort St. James.

OWNER: UNION MINIERE EXPLORATIONS AND MINING CORPORATION LIMITED, 1000, 1055 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

The Tam claim group covers a flat alpine plateau terminated to the north by cirque cliffs facing the valley of Haha Creek. Rocks exposed along this cliff are syenites and feldspathized monzonites of Units 6(ii) and 6A. Coarse-grained syenite envelopes remnants of pyroxenite and biotite schist along this ridge, and this complex is cut by occasional quartz veins which rarely have chalcopyrite and hematite in vugs.

Disseminated chalcopyrite and minor bornite occur within a highly fractured dark grey to pink syenitic gneiss. Assays across this zone have been reported as 0.58 per cent copper over 80 feet. The general trend of the gneissosity is northwest with steep dips. The strong fracture pattern trends northeast and dips steeply to moderately southeast. Malachite stain is not abundant where the best primary mineralization was noted, but staining increases on the cliff face and in talus blocks down the north facing cirque wall.

WORK DONE: A geochemical survey was done on Tam 5-9, 13-20 in 1970. Magnetometer and induced polarization surveys covering 1.5 line-miles were done on Tam 3-8, 16, and 18 in 1971.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, Preliminary Map No. 9; Assessment Reports 2523, 3217.

MISTY (No. 170, Fig. D)

By J. A. Garnett

LOCATION: Lat. 55° 55' Long. 125° 31' (93N/13E)
OMINECA M.D. At approximately 5,000 feet elevation on Duckling Creek.

CLAIMS: MISTY 1 to 20.

ACCESS: By helicopter from Germansen Landing.

OWNER: EL PASO MINING AND MILLING COMPANY, 500, 885 Dunsmuir Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

The Misty claims are mainly underlain by monzonitic rocks of Unit 6A and syenitic rocks of Unit 6. In places, the units exhibit a northwest trending foliation, and this is best observed in more mafic zones, where the foliation is defined by alignment of mafic minerals and streaks of magnetite. The northwest foliation zones are parallel to a well-developed airphoto linear, and the existence of slickensides and intensity of fracturing suggests that a regional fault traverses the property. At the northwest end of the property, a northeast trending structural break exposes foliated gneisses and schists (Unit 1) that are enveloped by the foliated intrusive rocks.

Mineralization consisting of pyrite, chalcopyrite, and minor bornite is disseminated in places along this highly fractured northwest trending linear zone. The original showing on the property was along a malachite-stained portion of the edge of a cirque that occupies the western part of the claim group (approximately 1.00 per cent copper over 25 feet). To the southeast of this original showing nine shallow trenches were dug by hand in 1963 for Fort Reliance Minerals Limited and showed weak mineralization (0.2 per cent to 0.4 per cent copper) erratically distributed over a length of 800 feet. Recent magnetometer and geochemical surveys reassessed this area and its southeast extension and initial bulldozer trenches confirmed that mineralization was weak and erratic around the old trenches. These trenches also exposed large blocks of biotite pyroxenite (Unit 3).

WORK DONE: Surface mapping, geochemical survey, trenching.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1949, p. 98 (Kay); *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 184; Preliminary Map No. 9; Assessment Reports 334, 440, 2778.

KIP (No. 124, Fig. D)

LOCATION: Lat. 55° 58.5' Long. 125° 26' (93N/14W)
OMINECA M.D. At approximately 5,000 feet elevation at the headwaters of Steele Creek, about 30 miles north-northwest of Germansen Landing.

CLAIMS: KIP 1 to 56, 1 to 15 Fractions, STL 1 to 24, 1 to 9 Fractions, PIK 1 to 15, 1 to 6 Fractions.

ACCESS: By helicopter from Germansen Landing, 30 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs as disseminations in quartz veins and along fractures and intergranular boundaries in syenitic and monzonitic phases within the Hogem batholith.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 400 feet on Kip claims; geochemical survey, 292 soil samples and 213 rock samples.

REFERENCE: Assessment Report 3341.

BETTY (No. 41, Fig. B)

By J. A. Garnett

LOCATION: Lat. 56° 04′ Long. 125° 23′ (94C/3W)
OMINECA M.D. Two miles northeast of the confluence of Haha Creek and Osilinka River.

CLAIMS: BETTY 1, 3 to 6.

ACCESS: By helicopter from Germansen Landing.

OWNER: CROYDON MINES LTD., 108, 718 Granville Street, Vancouver 2.

METALS: Copper, (gold).

DESCRIPTION:

The Betty claims lie within Takla Group volcanic rocks immediately east of their contact with the Hogem batholith. The main showings are exposed in four northerly trending trenches along the west facing slope of a conical hill rising 2,000 feet above the Osilinka River valley. Malachite, azurite, and chrysocolla occur as coatings on brecciated fragments within several small steeply dipping, northerly trending faults. Chalcopyrite and pyrite are rarely noted due to the intense oxidation within the trenches. Magnetite is also present in small veins. Near the crest of the hill, a 2-foot massive magnetite vein containing occasional grains of visible gold can be traced over 100 feet.

The claims were located by Mr. Emil Bronlund in 1957. Bralorne Mines Limited did work on the property from 1958 to 1963 and drilled two diamond-drill holes to investigate a magnetic anomaly.

WORK DONE: None in 1971.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, Preliminary Map No. 9.

PINE PASS 93O

JACK, HART (No. 133, Fig. D)

LOCATION: Lat. 55° 01′ Long. 123° 17′ (93O/3W)
CARIBOO M.D. Reed Lake, 10 miles west of McLeod Lake.

CLAIMS: JACK 1 to 36, HART 1 to 12, NONI 3 to 9, 11, DON 1 to 10, J 1 to 12.

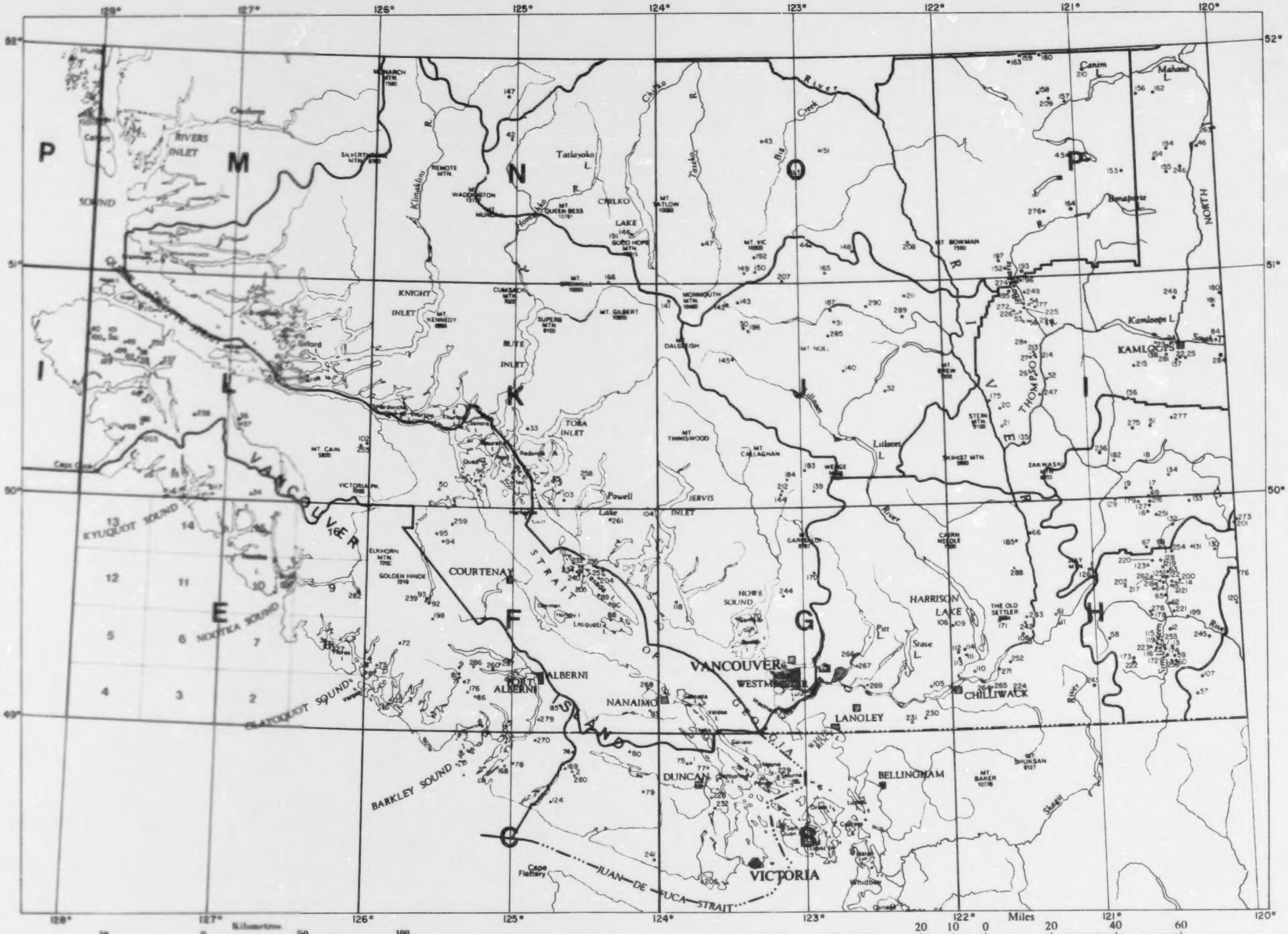
ACCESS: By aircraft from McLeod Lake, 10 miles.

OPERATOR: ISO EXPLORATIONS LTD., 7th Floor, 1177 West Hastings Street, Vancouver 1.

METAL: Molybdenum.

DESCRIPTION: Molybdenite occurs in a quartz porphyry sill intruding volcanic and sedimentary rocks of the Slide Mountain Group.

WORK DONE: Geochemical soil survey, 2,000 samples; surface diamond drilling, seven holes totalling 2,000 feet on Jack 1 and 3.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KNIGHT INLET
BUTE INLET
TOBA INLET
JERVIS INLET
HOWE SOUND
Tatlayoko L.
CHILKO LAKE
Chilko R.
Taseko R.
Big Creek
River
Canim L.
Mahood L.
Bonaparte
NORTH
Kamloops L.
KAMLOOPS
THOMPSON
FRASER
Lillooet L.
HARRISON LAKE
Pitt L.
Stave L.
Powell Lake
MT. WADDINGTON
MT. QUEEN BESS
MT. TATLOW
MT. VIC
MT. BOWMAN
MT. GILBERT
MT. SIR FRANCIS DRAKE
MT. KENNEDY
MT. GILBERT
MONMOUTH MTN.
MONARCH MTN.
SILVERTHRONE MTN.
REMOTE MTN.
GOOD HOPE MTN.
MT. TINNISWOOD
MT. CALLAGHAN
MT. CAIN
VICTORIA PK.
ELKHORN MTN.
GOLDEN HINDE
GARIBALDI
MT. NOEL
STEIN MTN.
SKIHIST MTN.
CAIRN NEEDLE
THE OLD SETTLER
MT. BAKER
MT. SHUKSAN
DALGLEISH
WEDGE
ZAKWASKI
Cape Scott
VANCOUVER ISLAND
STRAIT OF GEORGIA
KYUQUOT SOUND
NOOTKA SOUND
CLAYOQUOT SOUND
BARKLEY SOUND
JUAN DE FUCA STRAIT
Cape Flattery
COURTENAY
ALBERNI
PORT ALBERNI
NANAIMO
DUNCAN
VICTORIA
VANCOUVER
WESTMINSTER
LANGLEY
CHILLIWACK
BELLINGHAM
Whidbey
Skagit
13
14
12
11
10
9
5
6
7
4
3
2
1
Kilometres
50
0
50
100
Miles
20
10
0
20
40
60

Figure E. INDEX MAP TO PROPERTIES IN NTS GRID DIVISION 92 AND PART OF 102

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SOUTHWEST BRITISH COLUMBIA
(NTS Division 92 and part of 102 Figure E)

CAPE SCOTT 102I

BERG (No. 40, Fig. E)

LOCATION: Lat. 50° 42'-45' Long. 127° 56.5' (102I/9E)
128° 05'
Report on this property in section 92L/12W.

VICTORIA 92B

MERRYTH, GRIFFITHS (No. 206, Fig. E)

LOCATION: Lat. 48° 20.5' Long. 123° 42.5' (92B/5E)
VICTORIA M.D. Between sea level and 300 feet elevation at Iron Mine Hill on Sooke Peninsula.
CLAIMS: JACK, TOKEN, EMDYK, W, K, totalling 27.
ACCESS: By road from Victoria, 15 miles.
OWNER: MACSAN EXPLORATIONS LTD., 620 Howe Street, Vancouver 1.
METAL: Copper.
WORK DONE: Geochemical soil survey, 4 line-miles covering K 2, 4, 6; airborne magnetic survey covering all claims.
REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1948, pp. 162-170; 1951, pp. 199, 200; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 225 (Sooke Copper); Assessment Report 3594.

SIRIUS (No. 77, Fig. E)

LOCATION: Lat. 48° 51' Long. 123° 39.5' (92B/13E)
VICTORIA M.D. At 300 to 1,000 feet elevation on Mount Richards, 1.5 miles southwest of Crofton.
CLAIMS: SIRIUS 1 to 27 (claims cover old YREKA, CORNUCOPIA, and DUKE OF YORK workings).
ACCESS: By road from Duncan, 6 miles.
OWNER: CANPAC MINERALS LIMITED, 205 Ninth Avenue SE., Calgary 21, Alta.
METAL: Copper.
DESCRIPTION: Gabbro-diorite and quartz-feldspar porphyry dykes intrude Sicker volcanic flows and tuffs. Thought to lie in main Mount Sicker shear extension.
WORK DONE: Geochemical soil survey, 100 samples covering portions of Sirius 1-27; induced polarization survey, 45 line-miles covering Sirius 1-27; surface diamond drilling, four holes totalling 1,747 feet on Sirius 12, 18, 4, and 23 respectively.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 292.

DAWN (No. 1, Fig. E)

LOCATION: Lat. 48° 52.3' Long. 123° 47.7' (92B/13W)
VICTORIA M.D. East side of Chemainus River, 8 miles north-northwest of Duncan.

CLAIMS: DAWN 1 and 2.

ACCESS: By road from Duncan.

OWNER: MOUNT SICKER MINES LTD., Box 576, Victoria.

WORK DONE: Line-cutting was done on Dawn 1 and 2 in 1970.

REFERENCE: Assessment Report 2914.

COPPER CANYON (No. 75, Fig. E)

LOCATION: Lat. 48° 52.2' Long. 123° 48.7' (92B/13W)
VICTORIA M.D. On the west bank of the Chemainus River, 8 miles northwest of Duncan.

CLAIMS: COPPER CANYON (Lot 22G).

ACCESS: Eight miles southwestward from Highway 1 by a logging road which leaves the highway near Chemainus Lake.

OWNERS: G. KINNEARD, Nanaimo; F. LORING, RR 2, Qualicum Beach; A.B.L. WHITTLES, Nanaimo.

METAL: Copper.

DESCRIPTION: Quartz veins in schist.

WORK DONE: Magnetic, electromagnetic, resistivity, seismic, and geochemical surveys were done on the Copper Canyon claim.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1898, p. 1148; 1903, p. 240; 1928, p. C365; Assessment Report 3099.

CAPE FLATTERY 92C

SUNRO MINE (SUNLOCH AND GABBRO) (No. 241, Fig. E)

By W. C. Robinson

LOCATION: Lat. 48° 26.5' Long. 124° 02.2' (92C/8E)
VICTORIA M.D. The mine is 1 mile north of the mouth of Jordan River.

ACCESS: One mile by road from the turnoff on Highway 14, one-half mile east of River Jordan Post Office.

OWNER: Dison Development Ltd. (This company has an operating lease from Sunro Mines Ltd. to mine on 51 contiguous claims which cover the Cave, Central, and River ore zones.)

OPERATOR: JORDAN RIVER MINES LTD., 744 West Hastings Street, Vancouver 1.

METAL: Copper.

WORK DONE: During 1971, rehabilitation and development work was done underground: Drifting and crosscutting, 2,399 feet; raising, 226 feet; slashing, 3,612 tons; diamond drilling, 6,015 feet. Other work included rehabilitation of the underground concentrator, the laying of an outflow pipe on the seabed, and the commencement of construction of a water supply system. An Ingersoll-Rand, 1,100-cubic-foot-per-minute compressor was installed on the surface.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 292, 293.

ALPHA, BETA (No. 79, Fig. E)

LOCATION: Lat. 48° 44.5′ Long. 124° 04.5′ (92C/9E)
VICTORIA M.D. Between 800 and 2,500 feet elevation on the east fork of Robertson River, 5 miles south of Mesachie Lake.

CLAIMS: Three Crown-granted claims, ALPHA, BETA, TOBOGA (Lots 1G, 2G, 3G), and 15 located claims, BURNSIDE, HILLTOP, HILLCREST, HILLSIDE, ANOMALY, ANOMALY 1 to 3, ROSE, DAISY, LENS NORTH, RED DOG, GINGER, BLACK DOG, FRANK.

ACCESS: By road from Lake Cowichan, 10 miles.

OWNER: ALBETA MINES LTD., 1014 Sluggett Road, Brentwood Bay.

METAL: Copper.

DESCRIPTION: Chalcopyrite, magnetite, and pyrite in skarn.

WORK DONE: Self-potential survey, 1.25 line-miles on Red Dog; trenching, 15 feet on Red Dog.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 291.

IT, DC (No. 124, Fig. E)

LOCATION: Lat. 48° 41.5′ Long. 124° 45′ (92C/10)
VICTORIA M.D. On the west shore of Cheewhat Lake, 1.5 miles east of Nitinat Lake.

CLAIMS: IT 7 and 8, DC 11 to 14.

ACCESS: By road and trail from Nitinat Lake, 2 miles.

OWNER: CHEEWHAT MINING LTD., 2448 Glenayr Drive, Nanaimo.

METALS: Copper, silver, zinc.

WORK DONE: Limited amount of stripping and trenching on IT 7 and 8.

DA (No. 168, Fig. E)

LOCATION: Lat. 48° 51.2′ Long. 125° 02.7′ (92C/14E)
ALBERNI M.D. Between 1,400 and 1,900 feet elevation on the south slope of Pachena Cone, 24 miles east-southeast of Ucluelet.

CLAIMS: DA 1 to 7 (formerly PC).

ACCESS: By road from Port Alberni, 50 miles.

OWNER: KEEVIL MINING GROUP LIMITED, 7th Floor, 1177 West Hastings Street, Vancouver 1.

METALS: Molybdenum, copper.

DESCRIPTION: Disseminated molybdenite and chalcopyrite occur in a complex stock.

WORK DONE: Geochemical soil survey, 400 samples covering DA 1-7.

REFERENCE: Assessment Report 600 (PC).

GAMBLER, OMAR (No. 78, Fig. E)

LOCATION: Lat. 48° 51′-53′ Long. 124° 58 - 125° 01′ (92C/14E, 15W)
ALBERNI M.D. Between 1,500 and 2,000 feet elevation on south side of Sarita River, 8 miles east-northeast of Bamfield.
CLAIMS: GAMBLER 1 to 8, OMAR 5 to 12, BS 1 to 27, KS 1 to 4.
ACCESS: By logging road from Port Alberni, 40 miles.
OWNER: KATANGA MINES LTD., 31, 615 West Hastings Street, Vancouver 2.
METALS: Copper, silver.
WORK DONE: Trenching, 7,640 cubic feet and stripping, 7,640 feet on Gambler, BS, and Omar claims.
REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 77 (Oma, Sunny, etc.)

TAM, EASY (No. 2, Fig. E)

LOCATION: Lat. 48° 50.5′ Long. 124° 35.2′ (92C/15E)
VICTORIA M.D. Four and one-third miles east-northeast of the north end of Nitinat Lake.
CLAIMS: TAM 1 to 40, EASY 1 to 52, C, D, and E Fractions, TUM TUM, TUM TWO, totalling 97.
ACCESS: Via the Cowichan Lake road and logging roads.
OWNER: HUDSON BAY EXPLORATION & DEVELOPMENT CO. LTD., 1695, 555 Burrard Street, Vancouver 1.
METALS: Copper, lead, zinc.
DESCRIPTION: The area is underlain by rocks of the Vancouver Group which are intruded by dioritic dykes. Chalcopyrite and pyrite occur as narrow veins in siliceous volcanic rocks. A few narrow veins of galena and sphalerite with pyrite occur near the north end of the property.
WORK DONE: Approximately 44 miles of line was cut, 2,257 soil samples were collected, and detailed geological mapping at the north end of the grid was done in 1970.
REFERENCE: Assessment Report 3025.

SOUTHERN CROSS (No. 74, Fig. E)

LOCATION: Lat. 48° 55.3′ Long. 124° 35.8′ (92C/15E)
ALBERNI M.D. Six miles west of the west end of Cowichan Lake.
CLAIMS: ROB 1 to 48, 1 and 2 Fractions.
ACCESS: By 40 miles of logging road west from the village of Lake Cowichan.
OWNER: Amax Potash Limited (formerly Amax Exploration, Inc.).
OPERATOR: DICTATOR MINES LTD., 1, 558 Howe Street, Vancouver 1.
METAL: Copper.
WORK DONE: Line-cutting and magnetometer survey on Rob 25 to 48.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1960, pp. 112-115 (Nadira Mines); *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 221; Assessment Reports 3098, 3375.

PAN, JD (No. 280, Fig. E)

LOCATION: Lat. 48° 48'-49.6' Long. 124° 34'-37.5' (92C/15E)
VICTORIA M.D. Between 500 and 1,500 feet elevation 3 miles east of the north end of Nitinat Lake, approximately 30 miles west-southwest of Lake Cowichan (Fig. 35).

CLAIMS: PAN, JD, totalling 60.

ACCESS: By road from Lake Cowichan, 30 miles.

OWNER: MARSHALL CREEK COPPER CO. LTD., 2966 Glen Lake Road, Victoria.

METAL: Copper.

DESCRIPTION: The Pan and JD claims are underlain by rocks of the Bonanza Subgroup.

WORK DONE: Geochemical soil survey, 1,400 samples covering Pan and JD claims; trenching, 75 feet on JD 18 and 19; percussion drilling, 40 holes totalling 240 feet on JD 8, 9, 18, 19 and Pan 10-12.

MJ, NiCu (No. 169, Fig. E)

By K. E. Northcote

LOCATION: Lat. 48° 51.5' Long. 124° 38' (92C/15E)
VICTORIA M.D. Between 600 and 1,000 feet elevation on the south side of Nitinat River, from 2 to 5 miles northeast of Nitinat Lake.

CLAIMS: Seventy-seven claims and fractions including MJ, NiCu, MCC, JW, MIKE.

ACCESS: By road from Lake Cowichan, 25 miles.

OWNER: Terrace-Bell Mines Ltd.

OPERATORS: HUDSON BAY MINING & SMELTING CO. LTD. and ANGLO AMERICAN CORPORATION OF CANADA EXPLORATION LIMITED, 1695, 555 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

The MJ, NiCu, MCC, JW, and Mike claims are underlain mainly by Bonanza pyroclastic and flow rocks with some interbedded volcano-sedimentary rocks. A small wedge of Karmutsen flows occurs in the north part of the claim group.

LITHOLOGY: The Bonanza volcanic rocks are mainly of basaltic andesite to andesite composition, consisting of multicoloured tuff breccias with interbedded amygdaloidal and massive flows. There are some interbedded siliceous rocks which probably represent rhyolitic facies but resemble siliceous zones of alteration. The volcano-sedimentary rocks consist of thin-bedded tuffaceous shale, siltstone, greywacke, and minor amounts of bedded siliceous sedimentary rocks. Some of the greywacke units are thick bedded and form massive cliffs.

The Bonanza sequence has been intruded by dykes and small stocks ranging in composition from diabase to quartz diorite. Locally, the abundance of these intrusions has resulted in metamorphism of the older volcanic rocks. Primary structures and textures of the volcanic rocks have been obliterated as a result of recrystallization and pervasive chloritization and epidotization. The appearance of these metamorphosed Bonanza volcanic rocks is similar to massive Karmutsen volcanic rocks and it is difficult to distinguish one from the other.

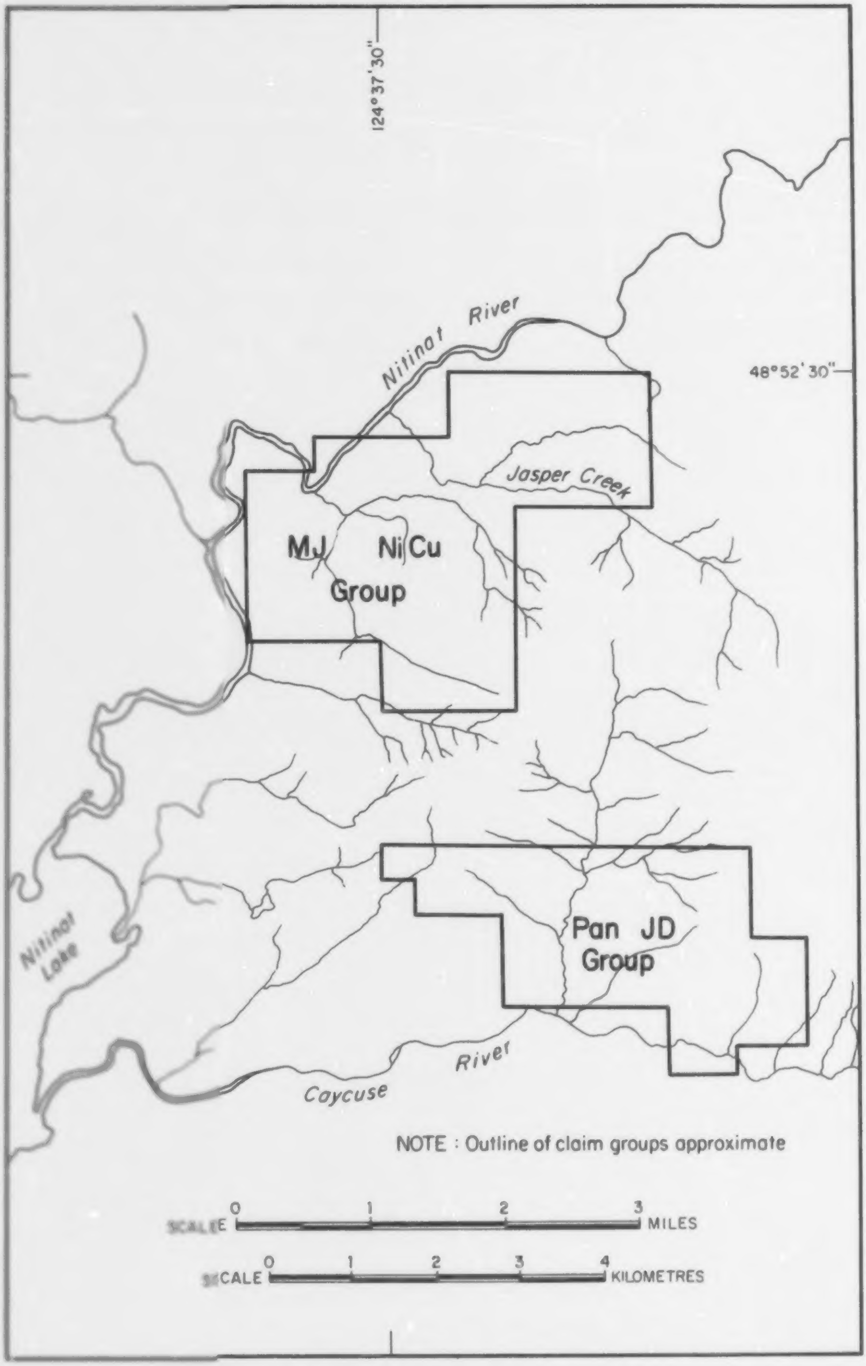

124°37'30"
48°52'30"
Nitinat River
Jasper Creek
MJ NiCu Group
Nitinat Lake
Pan JD Group
Caycuse River
NOTE : Outline of claim groups approximate
SCALE
0
1
2
3
MILES
SCALE
0
1
2
3
4
KILOMETRES

Figure 35. Index map, MJ, NiCu, Pan, and JD claim groups.

A small wedge of thick-bedded, massive, and amygdaloidal Karmutsen basalts is located at the lower end of Jasper Creek, at the north end of the claim block (Fig. 35). The Karmutsen basalts appear to be in fault contact with Bonanza rocks. Parson Bay carbonaceous limestone, Quatsino limestone, and well-developed pillow lavas in the upper part of the Karmutsen, all of which are prominent in the stratigraphic section a few miles to the east, were not observed on the MJ claim group.

STRUCTURE: Bedding is visible in thin-bedded Bonanza volcano-sedimentary sequences but is inconspicuous in the massive volcanic rocks, particularly where they have been metamorphosed. Where discernible, bedding generally has a moderate southerly to easterly dip. There are local areas where bedding is widely divergent from this general attitude and may be the result of localized folding near faults.

ALTERATION: Elongate alteration zones, probably in old shear zones, pass through the Bonanza volcanic rocks. Such zones have a pronounced bleached and granular appearance and consist of quartz, sericite, and pyrite. They are friable and iron stained where weathered. The alteration zones commonly contain relatively unaltered dykes, but dykes do occur unaccompanied by alteration and alteration occurs unaccompanied by dykes. The relationship between alteration zones and dykes appears to be a spatial one and not necessarily a genetic one.

MINERALIZATION: The siliceous, sericitic, pyritized alteration zones are not consistently well mineralized. Some contain pods and stringers of chalcopyrite and lesser amounts of bornite. Other mineral occurrences of bornite and chalcopyrite are found in fractures and shear zones in metamorphosed Bonanza volcanic rocks.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet on MJ claims and reconnaissance geological mapping on MCC claims; geochemical survey, 400 samples covering MCC claims; induced polarization survey, 8 line-miles covering NiCu 4 to 7, MJ, MJ 1-4, 6-8, 12, 22, 24, and Mike 11 and 12 claims; surface diamond drilling, four holes totalling 1,274 feet on NiCu 5 and 7, MJ, and Mike 12 Fraction.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 290.

COMEGO (No. 80, Fig. E)

LOCATION: Lat. 48° 55.7′ Long. 124° 11.3′ (92C/16E)
VICTORIA M.D. Between 2,100 and 2,800 feet elevation on the divide between Widow Creek and Chemainus River, 4 miles north of Youbou.

CLAIMS: ANNE 1 to 12, 23 to 32, 35 to 40.

ACCESS: By logging road from Chemainus, 29 miles.

OWNER: Hibernia Mining Co. Ltd.

OPERATOR: TAGUS SYNDICATE, 202, 850 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum, gold.

DESCRIPTION: Chalcopyrite mineralization occurs in skarn within sedimentary and volcanic rocks of the Vancouver Group associated with a very fine-grained diorite.

WORK DONE: Claims and surface workings mapped; surface geological mapping, 1 inch equals 200 feet covering Anne 1-4 and 7-10; surface diamond drilling, seven holes totalling 1,641 feet on Anne 3, 4, 7, and 8.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 290; Assessment Report 2849.

NOOTKA 92E

CATFACE (No. 87, Fig. E)

LOCATION: Lat. 49° 16' Long. 125° 59' (92E/1E, 8E)
Report on this property in section 92F/4W.

PW, RW, JB (No. 4, Fig. E)

LOCATION: Lat. 49° 16'-18.5' Long. 125° 56' - 126° 02' (92E/8E)
ALBERNI M.D. On Catface Range peninsula, south of Herbert Inlet, 10 miles north-northwest of Tofino.

CLAIMS: PW, RW, JB, W, RH, totalling 81.

ACCESS: By boat or floatplane from Tofino.

OWNER: FORT RELIANCE MINERALS LIMITED, 25 Adelaide Street East, Toronto, Ont.

WORK DONE: Magnetometer and geochemical surveys on RH 1-12 and JB 8 and 10.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, 1970, p. 286; Assessment Reports 2116, 2454, 3132.

BAY (No. 227, Fig. E)

LOCATION: Lat. 49° 21'-23.4' Long. 126° 12'-14' (92E/8E)
ALBERNI M.D. On the northwest corner of Flores Island, 15 miles northwest of Tofino.

CLAIMS: BAY 1 to 7, 11 to 22, 24 to 26, 30 to 32, 41 to 47.

ACCESS: By boat or aircraft from Tofino, 15 miles.

OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 2201, 1177 West Hastings Street, Vancouver 1.

METALS: Copper (molybdenum).

DESCRIPTION: Chalcopyrite occurs disseminated and in narrow fracture zones in siliceous and subporphyritic phases of quartz diorite.

WORK DONE: Reconnaissance geological mapping and a geochemical survey were done.

REFERENCE: Assessment Report 3240.

SYDNEY (No. 3, Fig. E)

LOCATION: Lat. 49° 24.3' Long. 126° 16' (92E/8W)
ALBERNI M.D. At approximately 500 feet elevation on Sydney Inlet, 2 miles north of Hot Springs Cove.

CLAIMS: SYD 1 to 21, ACCESS 1 to 6, HOT 1 to 8, 10 to 28, 31, 32, 38 to 50, HOT 9 Fraction, SC 1 and 2, SC 3 and 4 Fractions, MSS 1 to 78, MATHEW 1 and 2, MATHEW Fraction.

ACCESS: By boat or floatplane from Tofino, 23 miles.

OPERATOR: JOREX LIMITED, 904, 85 Richmond Street West, Toronto 1, Ont.

METALS: Copper, molybdenum.

DESCRIPTION: A hornfels zone adjacent to a granite contact contains lenses of magnetite and scattered sulphides (pyrrhotite, chalcopyrite, pyrite, bornite). Good-grade hornfels float is found in the vicinity. Some fractures in intrusive rock contain chalcopyrite and molybdenite.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Syd 1-6, 13-17, SC 1 and 2, SC 3 and 4 Fractions, Hot 3, 31, and 32 claims; geochemical soil survey, 11 line-miles covering same claims; magnetometer and induced polarization surveys, 568 readings covering same claims; surface diamond drilling, four holes totalling 1,990 feet on Syd 3-6.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 102; Assessment Reports 1592, 2929.

JADE (No. 282, Fig. E)

LOCATION: Lat. 49° 37' Long. 126° 04' (92E/9E)
ALBERNI M.D. At the east end of Muchalat Inlet, on the south shore of Matchlee Bay.

CLAIMS: JADE 1 to 4, GR 1 to 18.

ACCESS: By boat from Gold River, 5 miles.

OWNER: MAIKO RESOURCES LTD., Box 519, North Vancouver.

METALS: Gold, silver, copper.

WORK DONE: Reconnaissance geological mapping; geochemical survey, 8 line-miles; trenching, 200 feet, all on Jade 1-4.

STAR OF THE WEST (GEO) (No. 81, Fig. E)

LOCATION: Lat. 49° 56.8' Long. 126° 40.3' (92E/15E)
ALBERNI M.D. At approximately 1,500 feet elevation at the head of Tahsis Inlet, 1 mile west of the village of Tahsis.

CLAIMS: GEO 1 to 30, 31 Fraction.

ACCESS: By logging road from Tahsis, 2 miles.

OWNER: Semiahmoo Petro-Mines Ltd.

OPERATOR: DeKALB MINING CORPORATION, 635 Sixth Avenue SW., Calgary 1, Alta.

METAL: Copper.

DESCRIPTION: Mineralization occurs in skarn at a limestone-granodiorite contact.

WORK DONE: Claims and surface workings mapped; surface geological mapping, 1 inch equals 400 feet; induced polarization survey, 4 line-miles; geochemical soil survey, 10 line-miles covering all claims; surface diamond drilling, eight holes totalling 1,400 feet on Geo 1-4.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 284.

MacMILLAN (No. 83, Fig. E)

LOCATION: Lat. 49° 06.3' Long. 124° 04' (92F/1E)
NANAIMO M.D. At approximately 1,500 feet elevation on south side of Blackjack Ridge, 7 miles southwest of Nanaimo.
CLAIMS: BULL 1 to 10.
ACCESS: By roads from Nanaimo, 12 miles.
OWNER: GARY MINES LTD. (formerly Tremar Minerals Limited), 12, 425 Howe Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Chalcocite occurs in siliceous breccia within Karmutsen volcanic rocks.
WORK DONE: Geochemical soil survey, 14.9 line-miles covering all claims; trenching, 300 square feet on Bull 3 and 4.
REFERENCE: *C.I.M.*, Bull., May, 1969, p. 511.

KEN (No. 85, Fig. E)

LOCATION: Lat. 49° 05.5'-09' Long. 124° 39'-41' (92F/2E)
ALBERNI M.D. At approximately 2,500 feet elevation on the west side of Douglas Peak, 8 miles southeast of Port Alberni.
CLAIMS: KEN 1 to 100.
ACCESS: By road from Port Alberni, 16 miles.
OWNER: NIPPON MINING OF CANADA LTD., 607, 475 Howe Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Chalcopyrite and pyrite occur in quartz veins and disseminated pyrite occurs in silicified, altered volcanic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 1,200 feet and geochemical soil survey, 500 samples covering all claims.

KITCHENER (No. 279, Fig. E)

LOCATION: Lat. 49° 02.5' Long 124° 50' (92F/2W)
ALBERNI M.D. South of Chesnucknuw Creek, 15 miles south-southwest of Port Alberni.
CLAIMS: KITCHENER 49, MODOC 48.
ACCESS: By road from Port Alberni, 23 miles.
OWNER: BEAVER MINES LTD., 10611 – 137th Street, Surrey.
METAL: Copper.
WORK DONE: Some trenching on both claims.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1931, p. 166 (Island Copper Co.); 1957, p. 69.

RAINY DAY, OCEAN WAVE, ORPHAN BOY (No. 5, Fig. E)

LOCATION: Lat. 49° 02.5' Long. 125° 01.2' (92F/3E)
ALBERNI M.D. At the southeast end of Henderson Lake, 18 miles south-southwest of Alberni.

CLAIMS: RAINY DAY, OCEAN WAVE, ORPHAN BOY, BELVIDERE, SANTA CRUSE, BIG BEAR (Lots 379, 303, 298, 301, 302, 304 respectively) Crown-granted claims and approximately 40 located claims JS and HL.

ACCESS: By secondary road or by boat, south from Alberni.

OWNER: NOOTKA EXPLORATIONS LTD., 901, 470 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: The area is underlain by basalt, diabase, and andesite of the Karmutsen Formation with lenses and discontinuous beds of white to light grey limestone occurring throughout the unit. Copper showings occur at or close to the diorite/Karmutsen contact with most of the showings in areas of limestone outcrop and in shear and fracture zones.

WORK DONE: Geochemical soil sampling, rock chip sampling, and detailed geologic mapping were carried out in 1970 on the Crown-granted claims.

REFERENCES: *Minister of Mines, B.C.*, Ann. Repts., 1928, p. 369; 1967, p. 77; Assessment Report 2856.

CHRIS (No. 6, Fig. E)

LOCATION: Lat. 49° 02.5′ Long. 125° 11.8′ (92F/3E)
ALBERNI M.D. At the head of Pipestem Inlet, 23 miles southwest of Alberni.

CLAIMS: CHRIS 1 to 6.

ACCESS: By floatplane from Alberni or by road from Alberni to the Brynnor Mines wharf at Toquart Bay and thence 8 miles by boat to the head of Pipestem Inlet.

OPERATOR: PACIFIC PETROLEUMS LTD., 408, 580 Granville Street, Vancouver 2.

METALS: Copper, lead, zinc.

DESCRIPTION: Pyrite and chalcopyrite occur as disseminated grains along numerous closely spaced fractures in tuff and tremolite rock. Chalcopyrite, magnetite, sphalerite, and galena also occur in narrow fractures in silicated limestone.

WORK DONE: A geochemical survey and geological mapping on a scale of 1 inch equals 500 feet were done in 1970.

REFERENCE: Assessment Report 3062.

SAM (No. 86, Fig. E)

LOCATION: Lat. 49° 10.3′ Long. 125° 14.8′ (92F/3E)
ALBERNI M.D. Between 1,000 and 1,500 feet elevation in Effingham River valley, 5 miles north-northwest of Effingham Inlet.

CLAIMS: SAM 12, 42 to 44, 47, 48.

ACCESS: From Port Alberni by water for 40 miles and logging road 8 miles.

OWNER: ALBERNI MINES LIMITED, 319 Argyle Street, Port Alberni.

METAL: Copper.

DESCRIPTION: A shear zone occurs in Karmutsen volcanic rocks lying between granodiorite intrusions.

WORK DONE: Trenching, 4,500 cubic feet on Sam 42.

LD (No. 176, Fig. E)

LOCATION: Lat. 49° 10.7' Long. 125° 18.4' (92F/3W)
ALBERNI M.D. At the headwaters of Canoe Creek at elevations of 1,200 to 4,000 feet, 30 miles west of Port Alberni.

CLAIMS: LD 1 to 23.

ACCESS: By paved road from Alberni and 4 miles of logging road along the Canoe Creek valley.

OWNER: MT. WASHINGTON COPPER CO. LTD., 610, 890 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Minor chalcopyrite occurs in fractures in Karmutsen basaltic volcanic rocks.

WORK DONE: Geochemical survey, 621 samples.

REFERENCE: Assessment Report 3376.

SHER (No. 7, Fig. E)

LOCATION: Lat. 49° 13.5' Long. 125° 18.5' (92F/3W)
ALBERNI M.D. Six miles southwest of the west end of Sproat Lake.

CLAIMS: SHER 1 to 20.

ACCESS: By four-wheel-drive vehicle via the McMillan-Bloedel logging road No. 714, 2 miles east from the Alberni-Tofino highway.

OWNER: MT. WASHINGTON COPPER CO. LTD., 610, 890 West Pender Street, Vancouver 1.

METAL: Minor copper.

DESCRIPTION: Karmutsen volcanic rocks and Quatsino limestone are intruded by multiphase Jurassic (?) intrusions. The porphyritic phases are mildly fractured and are locally strongly silicified. Pyrite is common as fracture fillings and disseminations. The volcanic rocks are metamorphosed to hornfels near contacts with intrusive rocks. Minor copper-zinc-iron mineralization occurs near limestone-volcanic contacts.

WORK DONE: Photogeological, geochemical, and electromagnetic surveys were done on the claims in 1970 and 1971.

REFERENCE: Assessment Report 2883.

VENT (No. 71, Fig. E)

LOCATION: Lat. 49° 14.5' Long. 125° 20.5' (92F/3W)
ALBERNI M.D. On the east side of Kennedy River, on Klitsa Mountain, 9 miles north-northeast of Kennedy Lake.

CLAIMS: VENT, totalling 37.

ACCESS: By road from Alberni, 23 miles.

OPERATOR: CROYDON MINES LTD., 27th Floor, 1177 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Magnetometer and induced polarization surveys on Vent 10, 12, 14, 16, 22 Fraction, and 28 to 33 claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 288; Assessment Reports 1902, 2464, 2996, 3058.

CATFACE (No. 87, Fig. E)

By K. E. Northcote

LOCATION:	Lat. 49° 16' Long. 125° 59' (92F/4W, 5W) ALBERNI M.D. Between 1,600 and 3,000 feet elevation in the Catface Range between Bedwell Sound and Herbert Inlet, 8 miles north-northwest of Tofino.
CLAIMS:	CATFACE, totalling 145.
ACCESS:	By boat and road from Tofino, 11 miles.
OWNER:	Catface Copper Mines Limited.
OPERATOR:	FALCONBRIDGE NICKEL MINES LIMITED, 500, 1112 West Pender Street, Vancouver 1.
METALS:	Copper, molybdenum.
DESCRIPTION:	

HISTORY: The first Catface claims were located late in 1960 and by the end of 1971 Catface Copper Mines Limited held a total of 145 claims and fractions. Geological mapping and geophysical and geochemical surveys have been carried out. Surface diamond drilling has totalled 62,812 feet, the first done with packsack drills and the rest with AQ, BQ, and NQ drills.

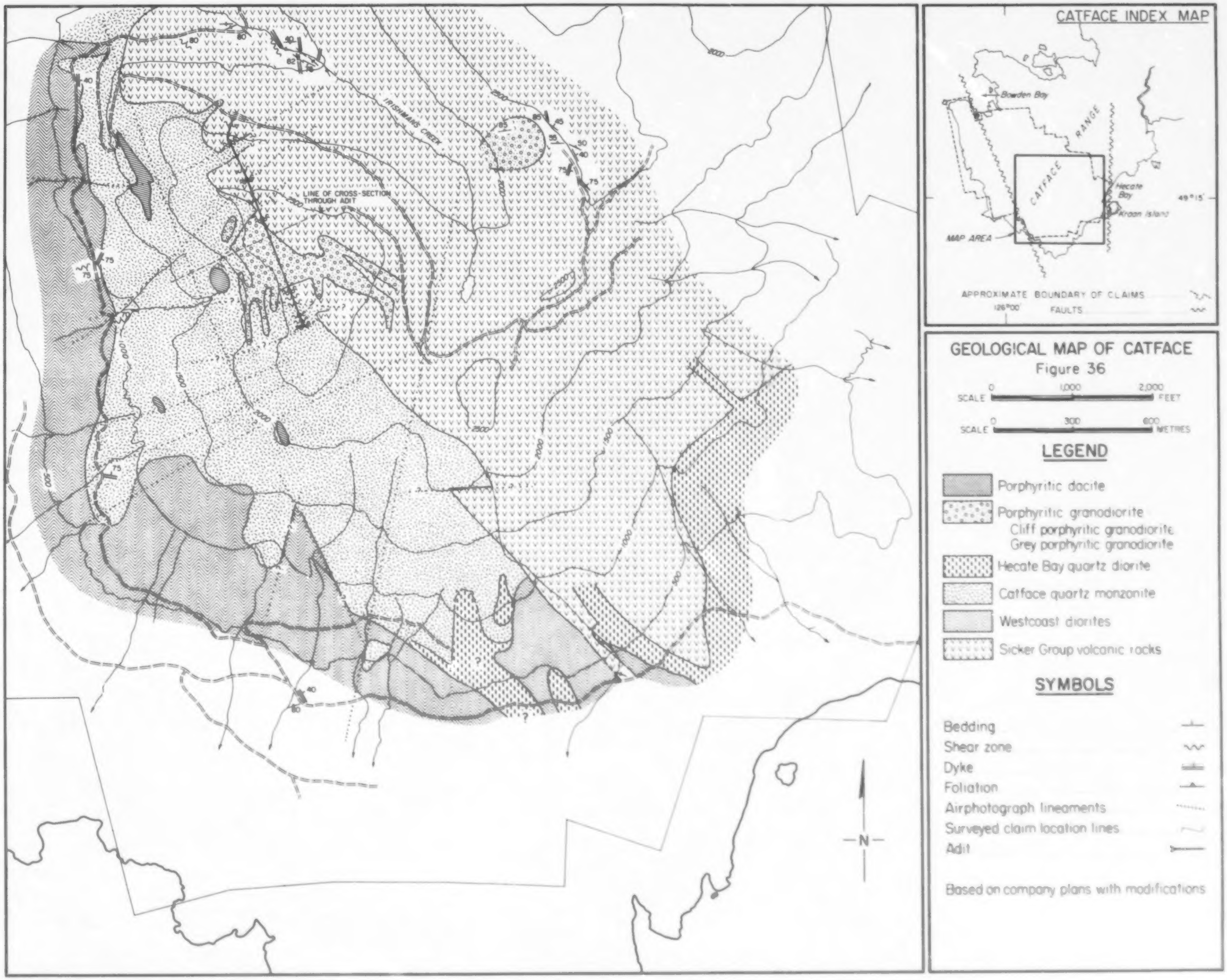
In 1970 an adit was driven for 2,810 feet south-southeasterly into the north facing slope above a stream locally called Irishman's Creek. During 1971, 29 holes totalling 23,697 feet were diamond drilled from the adit.

The company provided the writer full access to the Catface property, and to all maps, reports, plans, diamond-drill core, and assays. In addition to the free access to the property, Falconbridge geologists and engineers, notably E. J. Wade, J. J. MacDougall, and G. Harper discussed the geology extensively with the writer. Many of the ideas expressed here originated with them.

REGIONAL GEOLOGY: The regional geology of the Catface area is shown by Muller and Carson, Geological Survey of Canada Map 17-1968, to consist of Sicker volcanic flow and pyroclastic rocks in fault contact with Westcoast diorites of the Westcoast Crystalline Complex. Both the Sicker and Westcoast diorites are intruded by and are in fault contact with Tertiary quartz diorite (Muller and Carson, 1969). A K-Ar age determination of 48 ± 12 million years was obtained for biotite from quartz diorite collected by Carson near Hecate Bay (Wanless, *et al.*, 1967, p. 15). Systems of northerly and westerly trending faults flank and pass through Catface Range (Muller and Carson, Map 17-1968).

GEOLOGY OF CATFACE PROPERTY: On the Catface property (Figs. 36, 37, and 38), in addition to the rock units evident in the region, there are several other intrusive phases. These are given informal names and include Catface quartz monzonite, Hecate Bay quartz diorite, porphyritic dacite, and the two porphyritic granodiorite phases named Cliff porphyritic granodiorite and Grey porphyritic granodiorite.

Sicker Group: The Sicker volcanic rocks are the oldest ones in the Catface map-area (Figs. 36 and 37). They weather to a light green colour and consist mainly of medium green tuff breccias of basaltic andesite composition. Fresh surfaces appear massive but weathered surfaces clearly show the fragmental nature, with clasts of amygdaloidal and fine-grained volcanic origin in a very fine fragmental matrix of similar composition. The fragments are commonly elongate, flattened, and aligned, resulting in a marked foliation which may be the result of deformation. Microscopic study of the Sicker rocks from the mine area reveals a hornfelsic metamorphism. They are composed of scattered



CATFACE INDEX MAP
Bowden Bay
CATFACE RANGE
Hecate Bay
Kraan Island
49°15'
MAP AREA
126°00'
APPROXIMATE BOUNDARY OF CLAIMS
FAULTS
IRISHMANS CREEK
LINE OF CROSS-SECTION THROUGH ADIT
SCALE 0 1,000 2,000 FEET
SCALE 0 300 600 METRES
LEGEND
Porphyritic dacite
Porphyritic granodiorite
Cliff porphyritic granodiorite
Grey porphyritic granodiorite
Hecate Bay quartz diorite
Catface quartz monzonite
Westcoast diorites
Sicker Group volcanic rocks
SYMBOLS
Bedding
Shear zone
Dyke
Foliation
Airphotograph lineaments
Surveyed claim location lines
Adit
N

GEOLOGICAL MAP OF CATFACE

Figure 36

Based on company plans with modifications

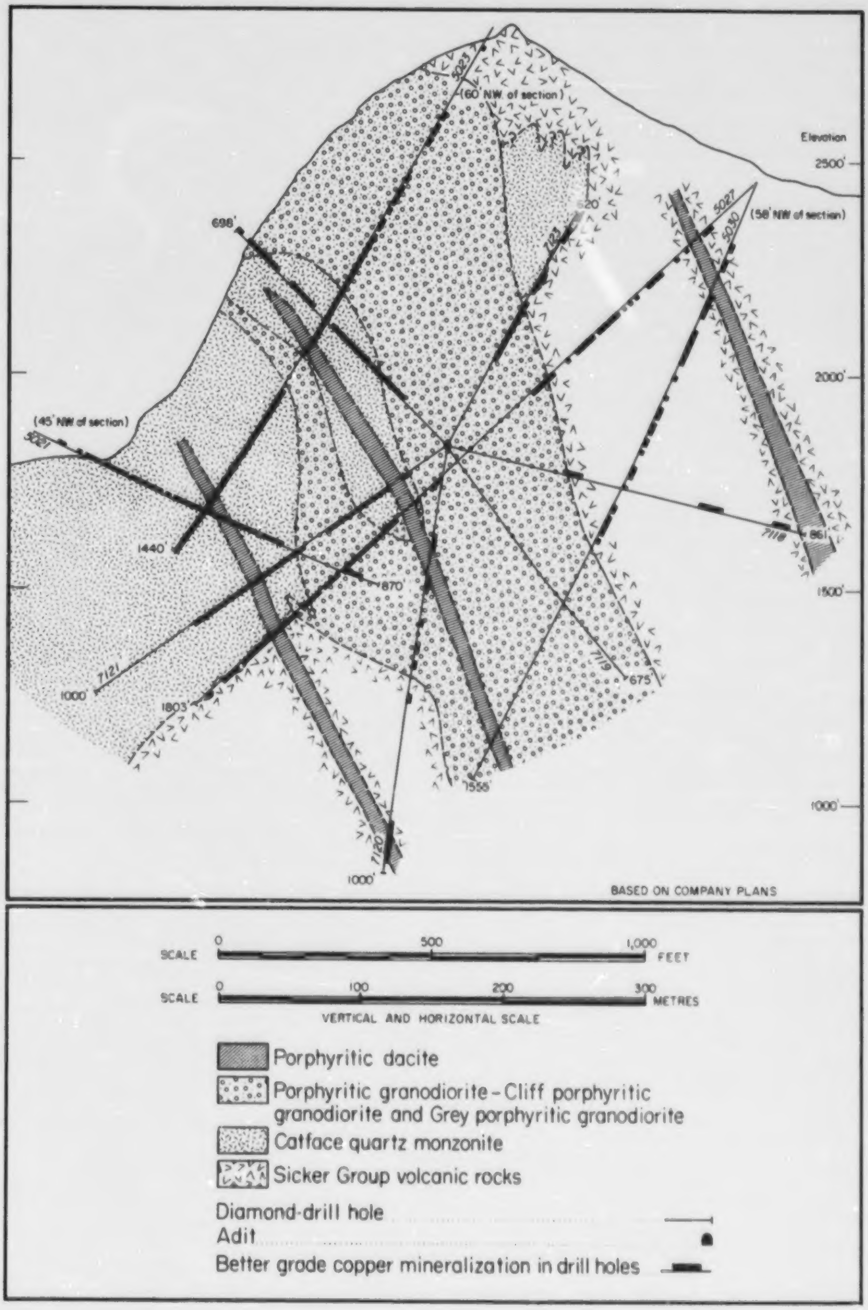

5023
(60' NW of section)
620'
7123
Elevation
2500'
5027
5030
(58' NW of section)
698'
2000'
(45' NW of section)
5027
1440'
870'
861'
7118
1500'
7121
1000'
1803'
7119
675'
1555'
1000'
7120
1000'
BASED ON COMPANY PLANS
SCALE
0
500
1,000
FEET
SCALE
0
100
200
300
METRES
VERTICAL AND HORIZONTAL SCALE
Porphyritic dacite
Porphyritic granodiorite - Cliff porphyritic granodiorite and Grey porphyritic granodiorite
Catface quartz monzonite
Sicker Group volcanic rocks
Diamond-drill hole
Adit
Better grade copper mineralization in drill holes

Figure 37. Catface, cross-section through adit, looking northerly (*see* Fig. 36).

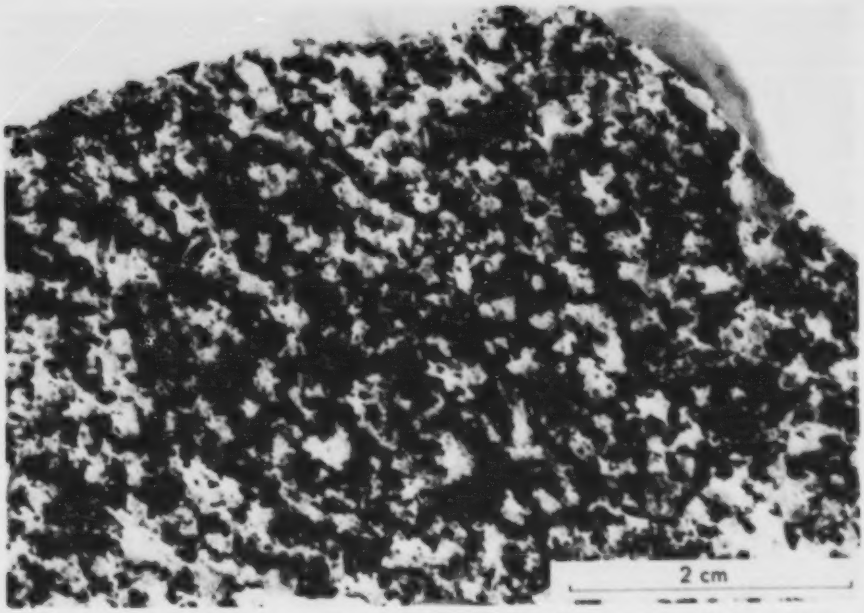


Plate VA. Westcoast diorites; although uniform in mineralogy, vary from diorite to quartz diorite; subpoikilitic hornblende ranges from 25 to 65 per cent.

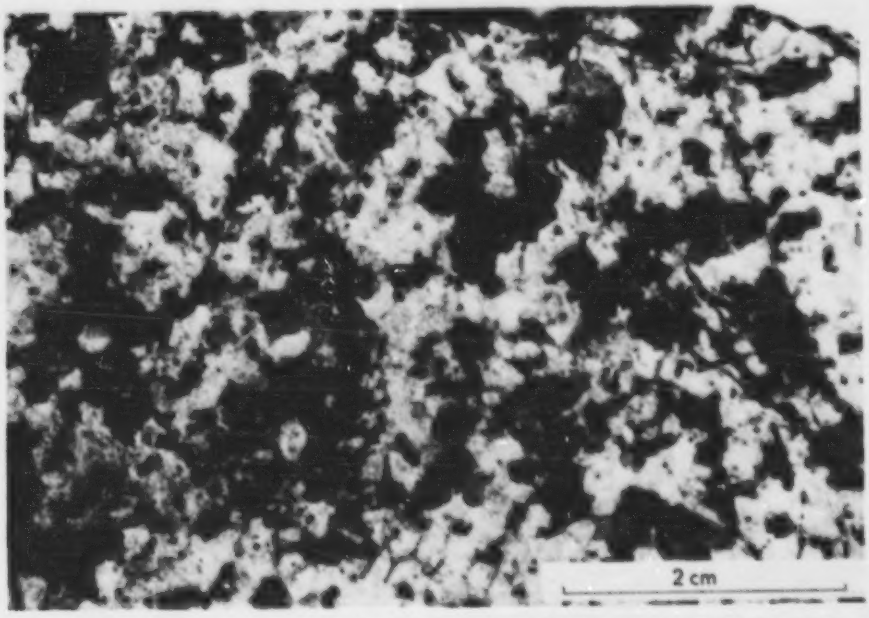


Plate VB. Catface quartz monzonite; ranges in composition from granodiorite to quartz monzonite and is coarse grained, holofelsic with conspicuous quartz (medium grey) and biotite (black). This specimen has criss-crossing quartz veinlets containing sulphides.

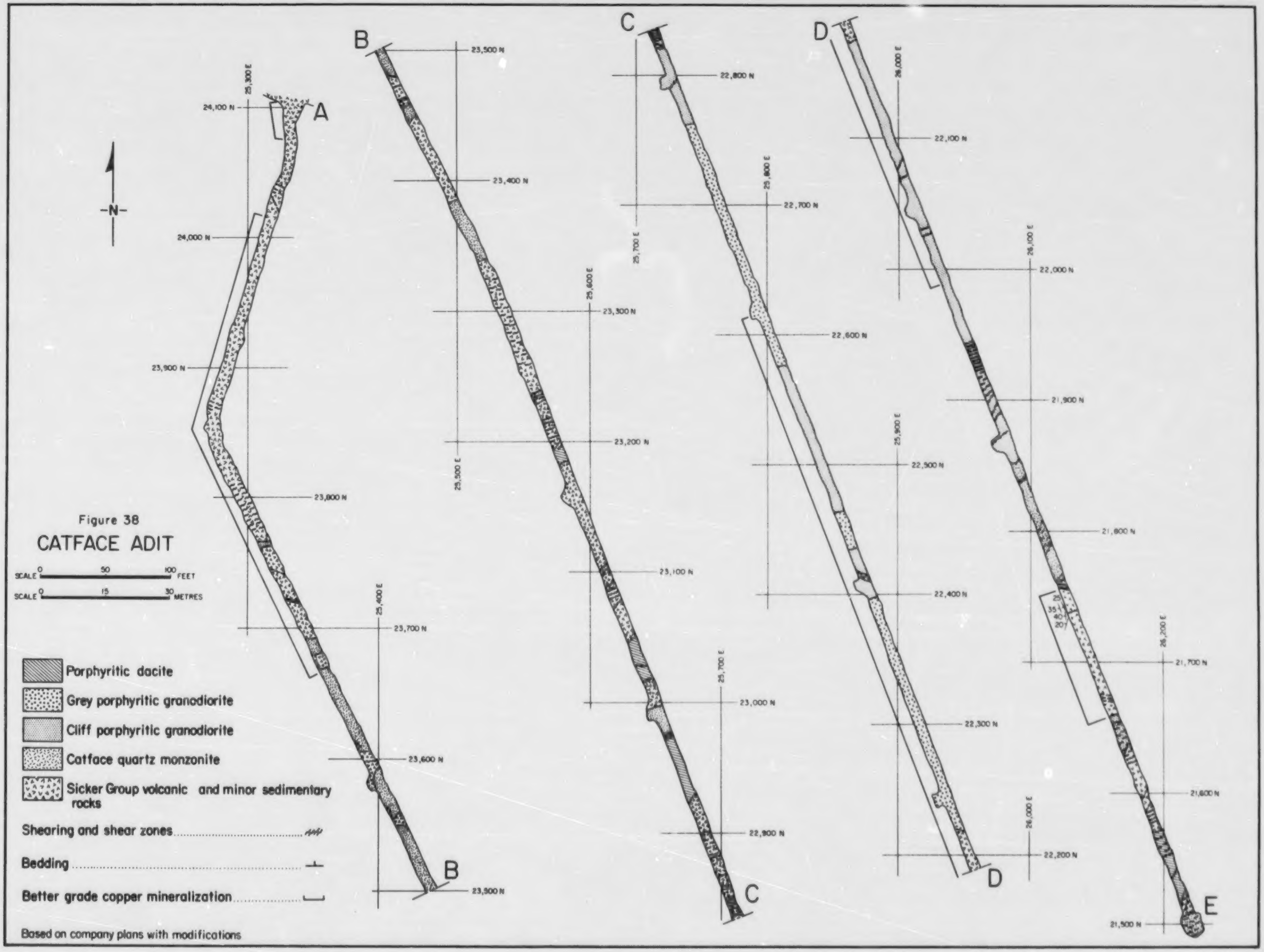

A
B
B
C
C
D
D
E
N
24,100 N
25,300 E
24,000 N
23,900 N
23,800 N
23,700 N
25,400 E
23,600 N
23,500 N
23,500 N
23,400 N
23,300 N
25,600 E
23,200 N
25,500 E
23,100 N
23,000 N
25,700 E
22,900 N
22,800 N
25,700 E
22,700 N
25,800 E
22,600 N
22,500 N
25,900 E
22,400 N
22,300 N
22,200 N
26,000 E
26,000 E
22,100 N
22,000 N
26,100 E
21,900 N
21,800 N
25
35
40
20
21,700 N
26,200 E
21,600 N
21,500 N
SCALE 0 50 100 FEET
SCALE 0 15 30 METRES
▨ Porphyritic dacite
▨ Grey porphyritic granodiorite
▨ Cliff porphyritic granodiorite
▨ Catface quartz monzonite
▨ Sicker Group volcanic and minor sedimentary rocks
Shearing and shear zones
Bedding
Better grade copper mineralization

Figure 38

CATFACE ADIT

Based on company plans with modifications

coarse-grained plagioclase laths, hornblende crystals, and quartz eyes in a very fine-grained groundmass of quartz, feldspar, and new acicular amphibole (actinolite ?).

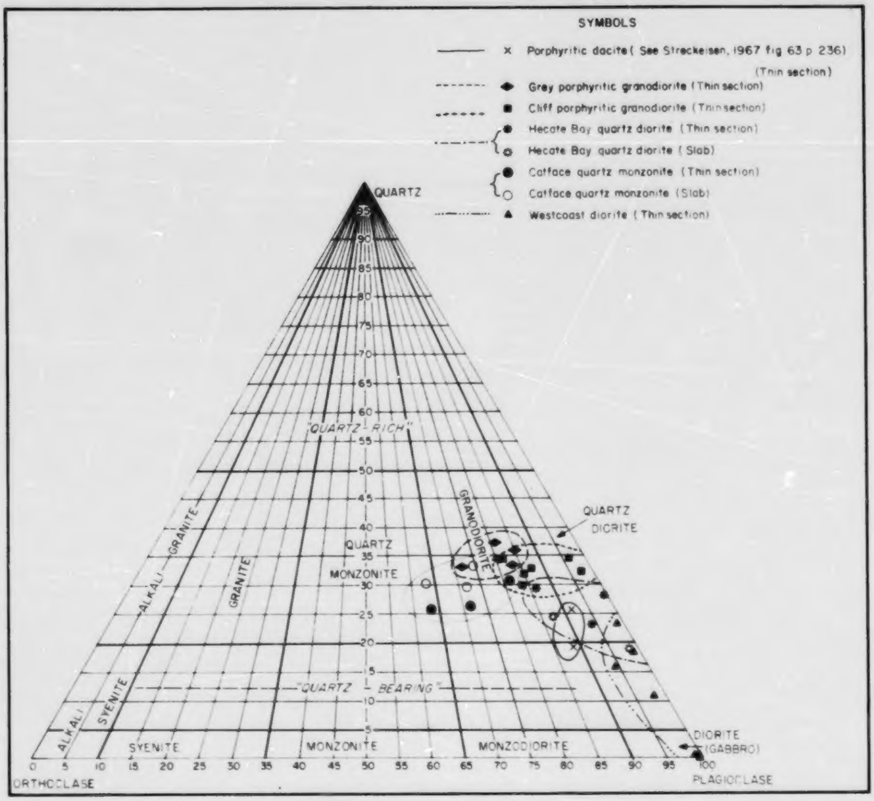


Figure 39. Catface, classification of intrusive rocks (after A. L. Streckeisen, 1967, Fig. 5A, p. 160).

Westcoast Diorites: The Westcoast diorites on Catface peninsula are intrusive into Sicker rocks. The diorites, although uniform in mineralogy, show a wide range in texture, grain size, and relative amounts of minerals (Plate VA). They consist largely of unzoned subhedral plagioclase (An_{40} to An_{50}), subpoikilitic hornblende ranging between 25 and 65 per cent, and varied amounts of quartz ranging from nil to about 20 per cent (Figs. 39 and 40). Accessory minerals include sphene, apatite, zircon (?), and magnetite.

The contact zone between Sicker rocks and the Westcoast diorites is gradational and is well exposed in the lower part of Irishman's Creek west of the map-area. Xenoliths of recrystallized Sicker rocks are enclosed and intruded by rock of diorite to quartz diorite composition. The contact is not well defined and in the contact zone it is difficult to distinguish between contaminated intrusive and recrystallized volcanic rocks. The contact zone is further complicated by dykes of quartz monzonite and several younger porphyritic phases (Fig. 36).

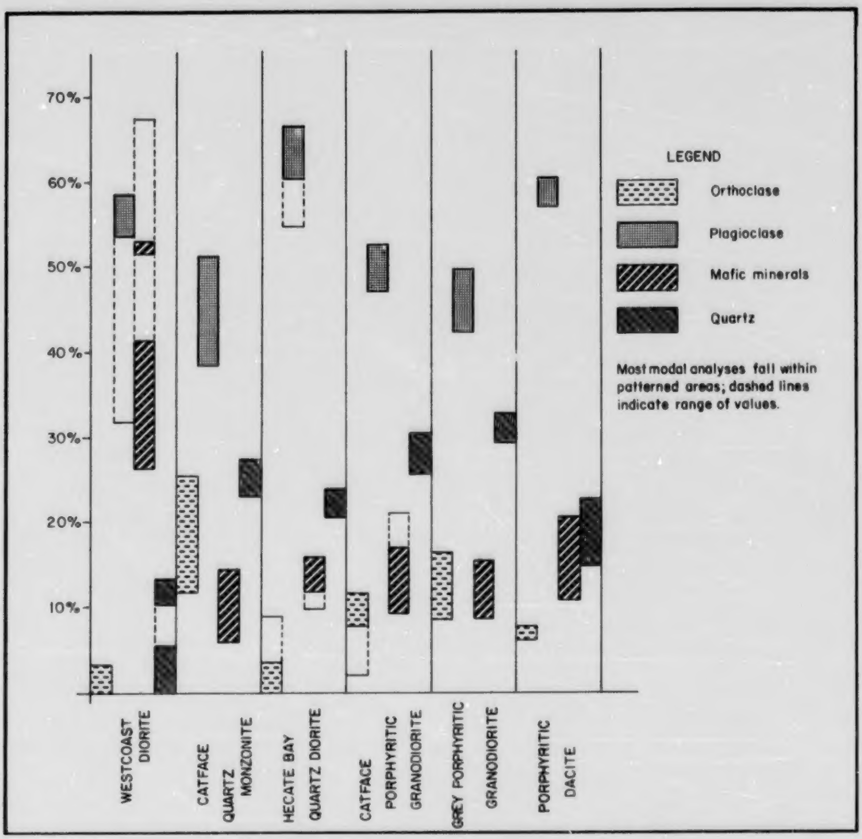


Figure 40. Catface, representation of modes.

Catface Quartz Monzonite: Catface quartz monzonite (Plate VB) was emplaced along the contact zone between the Westcoast diorites and Sicker volcanic rocks (Fig. 36). Diamond drilling has shown the quartz monzonite-granodiorite body to be sill-like; a large body of quartz monzonite-granodiorite exposed at the present surface is underlain by Sicker volcanic rocks (Fig. 37).

Modal analyses of Catface quartz monzonite fall in the quartz monzonite and granodiorite fields of Figure 39. They are coarse-grained, leucocratic to holofelsic rocks composed of subhedral plagioclase, anhedral interstitial grains of quartz, and masses of orthoclase. Mafic content ranges from 10 to 15 per cent and, in most of the specimens examined, consists mainly of biotite. Some of the biotite is medium grained, well formed, and is probably primary. Clusters and veinlets of small ragged biotite grains, possibly of hydrothermal origin, fill fractures and surround other mineral grains.

Geological relationships indicate that the Catface quartz monzonite may be of Jurassic age. It is younger than Westcoast diorites and older than the porphyritic granodiorite phases.

Hecate Bay Quartz Diorite: Hecate Bay quartz diorite intrudes Sicker volcanic rocks, Westcoast diorites, and Catface quartz monzonite on the southeast flank of the Catface Range (Fig. 36). The Hecate Bay quartz diorite (Plate VIA) is equigranular, medium grained, and leucocratic. Modal analyses fall within the quartz diorite and granodiorite fields of Figure 40. This phase consists of 55 to 65 per cent plagioclase of An_{34} to An_{40} showing oscillatory zoning, about 10 per cent orthoclase, 10 to 15 per cent mafic minerals with more biotite than hornblende, and 20 to 25 per cent quartz (Fig. 40). Biotite occurs both as well-formed medium-grained crystals, which are probably of primary origin, and as interstitial aggregates of fine grains, which may be the result of alteration. A K-Ar age determination on biotite by the Geological Survey of Canada on a specimen collected by D.J.T. Carson gave an Eocene age of 48 ± 12 million years (Wanless, *et al.*, 1967, p. 15).

Porphyritic Granodiorite Phases: The porphyritic granodiorite phases crop out on the crest of the Catface Range in the zone of contact of Sicker Group, Westcoast diorites, and Catface quartz monzonite (Fig. 36). Hecate Bay quartz diorite and porphyritic granodiorite phases although not in contact are probably genetically related. Figure 40 shows an apparent sequence of differentiation of three phases from Hecate Bay quartz diorite to porphyritic granodiorite. The plagioclase of the Hecate Bay quartz diorite and porphyritic granodiorite phases shows strongly developed oscillatory zoning. The porphyritic phases are grouped together on Figures 36 and 37 but are shown separately on Figure 38 and are informally called Cliff porphyritic granodiorite and Grey porphyritic granodiorite.

(a) Cliff Porphyritic Granodiorite (Plate VIB): Modal analyses of the Cliff porphyritic granodiorite phase fall within the granodiorite and quartz diorite fields of Figure 39. This phase is fine to medium grained, leucocratic, and contains about 10 per cent orthoclase, 15 to 20 per cent quartz, and 50 per cent plagioclase showing oscillatory zoning with the most calcic portions of composition An_{32} to An_{44}. Plagioclase occurs both in the groundmass and as scattered medium to coarse-grained phenocrysts. Mafic content is 10 to 20 per cent, with biotite predominating over hornblende (Fig. 40). Biotite forms small interstitial grains which replace hornblende and are very irregular in shape.

(b) Grey Porphyritic Granodiorite (Plate VIIA): Modal analyses of the Grey porphyritic granodiorite fall within the granodiorite field of Figure 39. This phase has scattered oscillatory zoned plagioclase phenocrysts with core compositions ranging from An_{36} to An_{49} in a very fine-grained matrix consisting of quartz, orthoclase, plagioclase, and biotite. The orthoclase content ranges from 8 to 16 per cent, quartz is about 30 per cent, and mafic minerals range from 10 to 15 per cent, with biotite predominating over hornblende (Fig. 40). Biotite occurs as very fine-grained aggregates of grains occurring interstitially and as small irregular fracture fillings in the matrix, suggesting a secondary or hydrothermal origin.

Porphyritic Dacite: Modal analyses for porphyritic dacite (Plate VIIB) are uncertain because with the very fine grain size misidentification of minerals in the groundmass is probable. These rocks appear to fall within the quartz diorite and quartz-bearing diorite fields of Figure 39. The cross section, Figure 37, indicates that this phase cuts all other intrusive rocks and is the youngest intrusive phase, however, modal analyses suggest that it is not a product of continuing differentiation of the porphyritic granodiorite phases. The porphyritic dacite contains patches of epidote, calcite, and chloritized mafic minerals, and appears to be the most extensively altered of all the intrusive phases in spite of being the youngest.

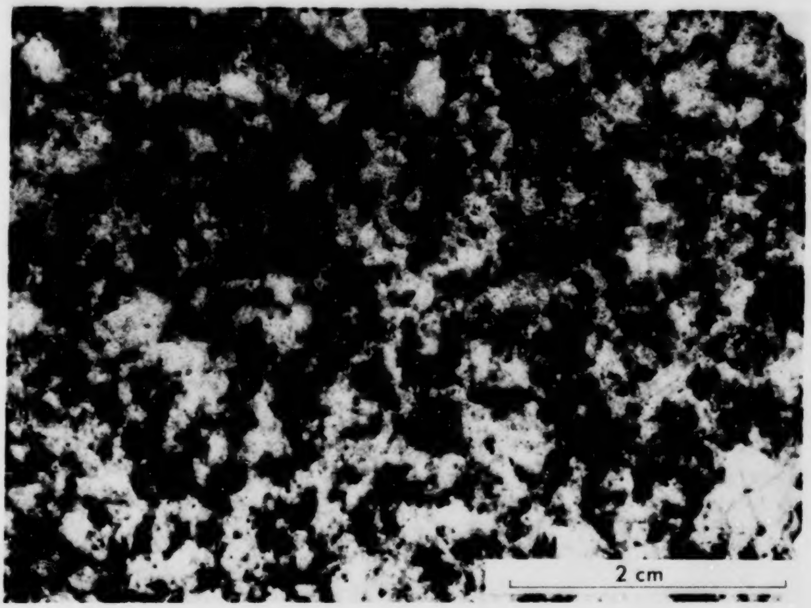


Plate VIA. Hecate Bay quartz diorite; leucocratic, medium grained, and ranges in composition between quartz diorite and granodiorite; euhedral plagioclase has oscillatory zoning; mafic content is 10 to 15 per cent with biotite more abundant than hornblende.

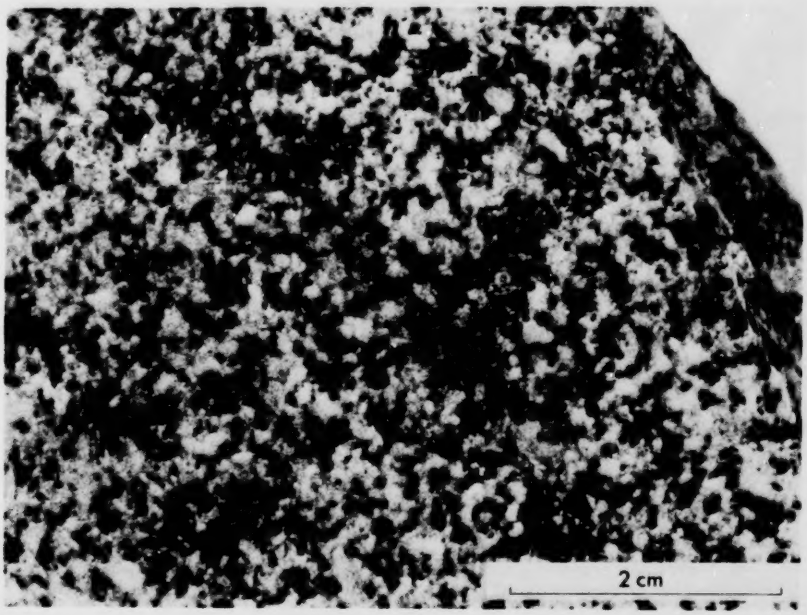


Plate VIB. Cliff porphyritic granodiorite; ranges in composition between quartz diorite and granodiorite; scattered medium to coarse-grained plagioclase phenocrysts have oscillatory zoning; mafic content is 10 to 20 per cent with biotite more abundant than hornblende.

Porphyritic dacite has a fine to very fine-grained matrix consisting of quartz, plagioclase, and orthoclase (?). It contains medium to coarse-grained phenocrysts of plagioclase showing poorly developed normal zoning with composition ranging from An_{31} to An_{42}. Mafic content is from 10 to 15 per cent and consists of acicular tremolite (?), which has a shredded appearance.

STRUCTURE: Two major northerly trending faults occur on either flank of the Catface property. One of these parallels Millar Channel and extends from Bawden Bay in the north to Calmus Passage in the south. The second fault zone passes between Kraan Island and the mainland of Catface peninsula and trends northerly just to the west of the prominent peak due north of Hecate Bay (Fig. 36, Index Map). Airphoto lineaments indicate a large number of northerly, westerly, and northeasterly trending structures between the two major fault zones. A few of the most important of these are shown on Figures 36 and 38. Some of the airphoto lineaments coincide with contacts between intrusive phases and between volcanic and intrusive rocks suggesting that some of these contacts may be along fault zones. The airphoto lineaments correspond very well to fracture systems measured in the adit by Golder, Brawner and Associates, with exception of a persistent northeasterly trending pattern on airphotos that is not well developed in the adit. Foliation in Sicker rocks at Irishman's Creek strikes easterly and dips steeply southerly toward the intrusive contact.

The contact zone between Westcoast diorites and Sicker rocks is, for the most part, obscured by younger intrusions. Where it is visible there is an obvious zone of recrystallized Sicker rocks cut by dykes of Westcoast diorites and younger phases. On the diorite side of the contact zone the intrusive rocks are contaminated by older wallrocks so that it is difficult to distinguish between recrystallized Sicker or hybrid rocks.

The Westcoast diorites occur in an irregular north-northwesterly trending belt of varied width on the southwest side of Catface peninsula and presumably followed a pre-existing zone of weakness. The diorite is the only phase that has appreciably metamorphosed its wallrocks, which now contain new actinolite (?).

The Catface quartz monzonite body forms a gently southwesterly dipping irregular sill-like body in the area of the adit, where it is underlain by Sicker volcanic rocks. The quartz monzonite was probably emplaced along an elongate zone of southwesterly dipping fractures. The quartz monzonite seems to have had little effect on surrounding rocks, although xenoliths of Sicker rocks and Westcoast diorites are in many cases well assimilated and occur as basic clots within the quartz monzonite.

The Tertiary Hecate Bay quartz diorite and its differentiates, the Grey porphyritic granodiorite and Cliff porphyritic granodiorite, were emplaced along the older intrusive Sicker contact, although the younger intrusions punched up through the Sicker into the quartz monzonite (Figs. 36 and 37). The general spider-like outline of the porphyritic phases suggests fracture-controlled emplacement. Contacts are sharp between the youngest intrusive phases, and between them and the older rocks. Emplacement of the youngest intrusive phases has had no appreciable metamorphic effect on older rocks, so presumably the young intrusions were emplaced at a low temperature. There is no widespread brecciation of either the older rocks or younger intrusives to suggest explosive brecciation in a subvolcanic environment, as is probably the case at Island Copper. At Catface the porphyritic phases suggest a differentiated cupola or stock from the Hecate Bay quartz diorite phase was more or less passively emplaced to its presently exposed position, probably not reaching the former surface to form a volcanic vent.

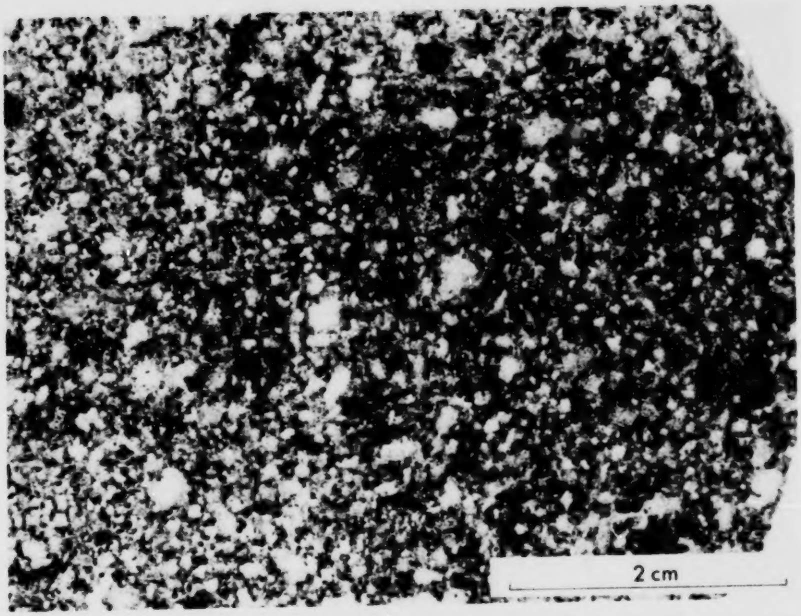


Plate VIIA. Grey porphyritic granodiorite; narrow range of composition within the granodiorite field; subhedral plagioclase phenocrysts have oscillatory zoning; mafic content is 10 to 15 per cent with biotite more abundant than hornblende.

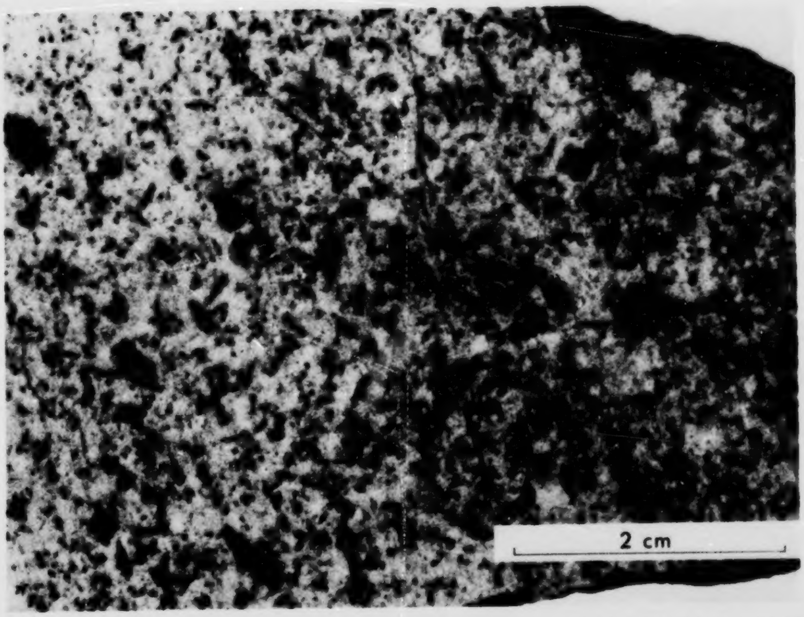


Plate VIIB. Porphyritic dacite; ranges in composition between quartz diorite and quartz-bearing diorite; appears to be the most altered of all intrusive phases.

Porphyritic dacite dykes appear to cut all other intrusive phases but are the most altered of all phases. Their composition, as indicated by modal analyses and degree of alteration, makes their relationship to other intrusive phases uncertain.

MINERALIZATION: Figures 37 and 38 show the rock types in which the better grade of mineralization occurs. In the adit, Figure 38, the best mineralized zones are in the Sicker volcanic rocks and the younger porphyritic phases, but these rocks are not consistently well mineralized. The cross section, Figure 37, shows that any of the rock units, including porphyritic dacite, may contain better grade mineralization, but again they may not be consistently well mineralized. The distribution of the better grade of mineralization on Figure 38 suggests that the top part of the section, which presumably is near the top of the magmatic chamber or cupolas leading from it, supports the better grade mineralization. This structural level of better grade mineralization is exposed by the present erosion surface.

Copper mineralization occurs as dry fracture coatings, in quartz-filled fractures, and as disseminations in the rock matrix commonly associated with mafic minerals. The copper minerals are mainly chalcopyrite and bornite, with some chalcocite. A significant amount of copper is in secondary carbonates, oxides, etc., which occur in fractures.

Molybdenum is closely associated with quartz in fractures and occurs as coatings and as small rich crystal clusters in quartz veins.

Falconbridge has not announced the size and grade of the Catface deposit. However, the grade of mineralization, the apparent size, and the position of the mineralization with respect to the present erosion surface make the Catface deposit an important one. The long and complex history of intrusion, the generally passive manner of emplacement of the younger phases, and the form and distribution of mineralization make the Catface deposit unique in many respects.

WORK DONE: Underground geological mapping, 1 inch equals 20 feet covering Catface 1 and 3; underground diamond drilling, 29 holes totalling 23,679 feet on Catface 1-3, 4, 17, and 18.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 287; Muller, J. E. and Carson, D.J.T., 1969, Geology and Mineral Deposits of Alberni Map-Area, British Columbia (92F), *Geol. Surv., Canada,* Paper 68-50 with Map 17-1968; Wanless, R. K., Stevens, R. D., Lachance, G. R., and Edmonds, C. M., 1967, Age Determinations and Geological Studies, K-Ar Isotope Ages, Report 7, *Geol. Surv., Canada,* Paper 66-17; Falconbridge Nickel Mines Limited, numerous unpublished maps, reports, and communication.

CREAM, BEAR (No. 198, Fig. E)

LOCATION: Lat. 49° 30' Long. 125° 33' (92F/5E, 12E)
ALBERNI M.D. Between elevations of 3,000 to 5,000 feet 4 miles south of Buttle Lake and west of Cream Lake.

CLAIMS: CREAM, BEAR, STAN, CROSS, PRICE, ELK, X, D, H, totalling 180.

ACCESS: By road from Campbell River, 55 miles, then by helicopter or trail 5.5 miles south of Buttle Lake.

OWNER: Cream Silver Mines Ltd.

OPERATOR: WESTERN MINES LIMITED, 870, One Bentall Centre, Vancouver 1.

METALS: Copper, lead, zinc, gold, silver.

DESCRIPTION:

Geological mapping by Western Mines staff during 1971 has revealed a succession of interbedded rhyolite and basaltic pillow lavas at the base of the Karmutsen rocks. A cliff 700 feet high, 1,500 feet west of Price Lake, is thought to be the source of three types of mineralized material in talus.

(1) Very fine-grained, banded chalcopyrite-pyrite-sphalerite.
(2) Sulphides in quartz-calcite breccia matrix.
(3) Fine-grained, friable, light grey sphalerite in dark grey altered rhyolite.

Other mineralization includes pyrrhotite-rich rhyolitic rocks occurring as layers between pillow lava on the west side of Price Lake and Price Lake Glacier.

Lead-zinc-silver mineralization is described in Geology, Exploration, and Mining in British Columbia, 1970, page 286.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet covering Stan 1-13 and 1 inch equals 1,000 feet covering Price 1-4 and Stan 1, 2; regional geological mapping, 1 inch equals 1,000 feet covering Cream, Bear, Stan, X, D, H, Price, and Cross claims; geochemical soil survey covering Bear 11-20, 25-42, Elk 1-6, H 1-6, X 1-9, and F 18-26 claims; magnetometer survey covering X 1-9; surface diamond drilling, three holes totalling 2,190 feet on X 1-9.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 286; Assessment Reports 3241, 3242, 3243.

TIE, BRAW (No. 72, Fig. E)

LOCATION: Lat. 49° 24.5′ Long. 125° 45.5′ (92F/5W)
ALBERNI M.D. On Bedwell River, 3 miles from Bedwell Sound.
CLAIMS: TIE 1 and 2, BRAW 3 and 4.
ACCESS: By boat from Tofino.
OWNER: WALTER GUPPY, Box 94, Tofino.
WORK DONE: In 1970, 72 soil samples were collected for chemical analysis.
REFERENCE: Assessment Report 2997.

CATS EYE, (No. 73, Fig. E)

LOCATION: Lat. 49° 16.3′-17.8′ Long. 125° 54′-56.5′ (92F/5W)
ALBERNI M.D. Between 100 and 300 feet elevation on the northwest side of Cypress Bay, at the mouth of Cypre River.
CLAIMS: CATS EYE, HOT, MONICA, totalling 43.
ACCESS: By aircraft or boat from Tofino, 12 miles.
OWNER: THUNDER VALLEY MINES LTD., 315, 543 Granville Street, Vancouver 2.
METALS: Copper, silver.
DESCRIPTION: The claims are underlain by andesite and andesite tuff interbedded with limestone and intruded by a gabbroic sill-like body. Chalcopyrite is associated with quartz in fractures.

WORK DONE: Surface geological mapping, 1 inch equals 500 feet; geochemical soil survey, 2 line-miles; airborne electromagnetic, magnetic, and radioactivity survey; ground magnetometer survey.

REFERENCES: Assessment Reports 3106, 3443, 3444.

PW, RW, JB (No. 4, Fig. E)

LOCATION: Lat. 49° 16'-18.5' Long. 125° 56' - 126' 02' (92F/5W)
Report on this property in section 92E/8E.

HM (No. 287, Fig. E)

LOCATION: Lat. 49° 18.5' Long. 125° 06' (92F/6E)
ALBERNI M.D. At 2,200 to 3,500 feet elevation between Great Central and Sproat Lakes, 15 miles west-northwest of Port Alberni.

CLAIMS: HM, totalling 55.

ACCESS: By road from Port Alberni, 23 miles.

OWNER: GREAT CENTRAL MINES LTD., 3370 Coast Meridian Road, Port Coquitlam.

METALS: Copper, nickel.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering HM 25-34 and 50; magnetometer survey, approximately 4 miles; geochemical soil survey, 560 samples; trenching, 200 feet on HM 34.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 220; 1970, p. 288; Assessment Report 3651.

HERB, MOON (No. 260, Fig. E)

LOCATION: Lat. 49° 17' Long. 125° 09' (92F/6E)
ALBERNI M.D. At the west end of Sproat Lake on the Alberni-Tofino highway, 20 miles west of Port Alberni.

CLAIMS: HERB, MOON, totalling 49.

ACCESS: By road from Alberni, 20 miles.

OWNER: McLEOD COPPER LTD., 6849 McPherson, Burnaby.

DESCRIPTION: Mineralization consists of chalcopyrite in weak disseminations in Karmutsen volcanic rocks. Some massive mineralization in argillite is reported.

WORK DONE: Surface geological mapping; geochemical soil survey, 484 samples; magnetometer survey, 10 line-miles; trenching, 1,000 feet; stripping, 2 acres; surface diamond drilling, 41 holes totalling 900 feet; percussion drilling, 25 holes totalling 100 feet, all on Herb 1-4.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 219.

MIKE, AJ (No. 286, Fig. E)

LOCATION: Lat. 49° 17.5' Long. 125° 16' (92F/6)
ALBERNI M.D. At 800 feet elevation on Taylor River, southeast of Doran Lake, 20 miles east-northeast of Alberni.

CLAIMS: MIKE, AJ, totalling 28 and APEX (Lot 978).
ACCESS: By road from Alberni, 20 miles.
OWNER: LOU-MEX MINES LIMITED, 309, 1095 Bute Street, Vancouver 5.
METALS: Gold, copper.
WORK DONE: Trenching, 950 feet on Mike 3 and 5, AJ 7, and Apex (Lot 978).
REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1934, p. F4.

TRI (No. 9, Fig. E)

LOCATION: Lat. 49° 18.5′ Long. 125° 20.7′ (92F/6W)
ALBERNI M.D. On the south side of Taylor River, 6.5 miles west of Sproat Lake.
CLAIMS: TRI 1 to 10.
ACCESS: By logging road, 2.5 miles west from the Alberni-Tofino highway.
OWNER: HUDSON BAY EXPLORATION & DEVELOPMENT CO. LTD., 1695, 555 Burrard Street, Vancouver 1.
METALS: Copper, zinc, iron.
DESCRIPTION: Magnetite, pyrrhotite, chalcopyrite, and sphalerite occur in amphibolitic skarn along a limestone-feldspar porphyry intrusive contact.
WORK DONE: In 1970, 36,800 feet of grid was cut and soil sampled.
REFERENCE: Assessment Report 3073.

YU (No. 8, Fig. E)

LOCATION: Lat. 49° 15.5′ Long. 125° 21.7′ (92F/6W)
ALBERNI M.D. Along the east side of Kennedy River, 7 miles west-southwest of the west end of Sproat Lake.
CLAIMS: YU 1 to 6.
ACCESS: A mile east from the Alberni-Tofino highway via a MacMillan Bloedel logging road.
OWNER: MT. WASHINGTON COPPER CO. Ltd., 610, 890 West Pender Street, Vancouver 1.
METALS: Copper, molybdenum.
WORK DONE: Geochemical and geological surveys were done in 1970 and 1971.
REFERENCE: Assessment Report 2884.

VENUS, ST. JOSEPH (No. 88, Fig. E)

LOCATION: Lat. 49° 30.5′ Long. 124° 20′ (92F/9W)
NANAIMO M.D. At approximately 100 feet elevation on the northwest end of Lasqueti Island.
CLAIMS: The Crown-granted claims VENUS (Lot 81), ST. JOSEPH (Lot 50), ST. ANTHONY (Lot 51), AJAX (Lot 52) and the located claims STRIKE 3 to 5, 9 to 12, TIE 1 to 4, TIE A and B, NEW ZONE A to K, NEW MID I to L, NEW STRIKE 1 and 2, 6 and 7.
ACCESS: By ferry from Parksville, 15 miles.
OWNER: Sweepstake Mines Ltd.

OPERATOR: ANCHOR MINES LTD., 807, 409 Granville Street, Vancouver 2.
METALS: Copper, gold.
DESCRIPTION: Mineralization occurs in altered amygdaloidal volcanic rocks near a contact with quartz diorite.
WORK DONE: Surface diamond drilling, five holes totalling 1,500 feet on St. Joseph and Strike 12 claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 214.

NE (No. 257. Fig. E)

LOCATION: Lat. 49° 41'-42.8' Long. 124° 20'-22' (92F/9W)
NANAIMO M.D. At approximately 300 feet elevation at Northeast Point on Texada Island, 10 miles southeast of Vananda.
CLAIMS: ADA 1 and 2, NE 1 to 35.
ACCESS: By road from Vananda, 15 miles.
OPERATOR: TEXADA MINES LTD., Box 10, Gillies Bay.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs as disseminatons and along fracture planes in andesite.
WORK DONE: Claims and surface workings mapped; surface geological mapping, 1 inch equals 100 feet; geochemical survey, 495 samples; magnetometer survey, 26,800 line-feet; trenching, 604 feet, all on Ada 1 and 2, NE 1 to 6 and 19 to 22 claims.

STROMBERG (No. 90, Fig. E)

LOCATION: Lat. 49° 35.5' Long. 124° 21' (92F/9W)
NANAIMO M.D. Between sea-level and 200 feet elevation, 5 miles northwest of Cook Bay on Texada Island.
CLAIMS: SEEL 9, 12, 14, 16, AB 1 to 16.
ACCESS: By boat.
OWNER: CAMBRIAN EXPLORATIONS LTD., c/o Bacon & Crowhurst Ltd., 1720, 1055 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs disseminated and in fractures in altered volcanic rocks associated with limestone.
WORK DONE: Limited amount of trenching on Seel 9, 12, 14, and 16 claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 213.

PAUL (No. 89, Fig. E)

LOCATION: Lat. 49° 36.5'-38' Long. 124° 22'-26' (92F/9W)
NANAIMO M.D. Between sea-level and 1,000 feet elevation approximately 5 miles southeast of Gillies Bay, west side of Texada Island.
CLAIMS: PAUL 1 to 52.
ACCESS: By dirt road from Gillies Bay, approximately 7 miles.
OWNER: CANADA CEMENT LAFARGE LTD., 1051 Main Street, Vancouver 4.
METALS: Gold, copper, iron.

WORK DONE: Topography mapped in part; line-cutting (for proposed diamond-drill programme); trenching, 153 feet on Paul 2-5, 8, 21, 24-28.

VERN (No. 204, Fig. E)

LOCATION: Lat. 49° 41.5′ Long. 124° 25.5′ (92F/9W)
NANAIMO M.D. At approximately 1,000 feet elevation on the south side of Mount Pocahontas, Texada Island.
CLAIMS: VERN 1 to 3, 9, 25 to 27.
ACCESS: By road from Vananda, 7 miles.
OWNER: KITIMAT COPPER CO. LTD., 6660 Dunnedin Street, North Burnaby.
METALS: Copper, silver.
DESCRIPTION: Chalcopyrite and magnetite occur in volcanic rocks at a contact zone.
WORK DONE: Trenching, 120 feet on Vern 26.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 283.

RAVEN (No. 91, Fig. E)

LOCATION: Lat. 49° 44′ Long. 124° 30′ (92F/9W, 10E)
NANAIMO M.D. Between sea-level and 800 feet elevation at Raven Bay, north shore of Texada Island, 3 miles southeast of Vananda.
CLAIMS: WILL 3 to 6, WILL 3 Fraction, MOLLY, MOLLY 1 to 7, KELLY JO Fraction, WILLY I and II, WILLY 3 and 4, 7 to 17, WILLY 5 and 6 Fractions (formerly RAVEN, RED CLOUD, GOOD HOPE).
ACCESS: By logging road from Vananda, 3.25 miles.
OWNER: TEXADA LIME LTD., 12, 425 Howe Street, Vancouver 1.
METALS: Copper, iron.
DESCRIPTION: Copper and iron mineralization occurs in limestone at a contact with granitic rock.
WORK DONE: Geochemical soil survey; ground magnetometer survey; stripping, 6 acres on Will 3.
REFERENCE: Assessment Report 3244.

LIME (No. 205, Fig. E)

LOCATION: Lat. 49° 43′ Long. 124° 31′ (92F/10E, 15E)
NANAIMO M.D. Between sea-level and 500 feet elevation 3 miles southeast of Vananda, Texada Island.
CLAIMS: Seventy-seven claims of which 23 are Crown granted and two mineral leases, M-1 and M-15.
ACCESS: From Vananda by Government and private roads, 0 to 4 miles.
OWNER: IDEAL BASIC INDUSTRIES, INC., 821–17th Street, Denver, Colo. 80202.
WORK DONE: Surface diamond drilling, two holes totalling 168 feet on Lime 4 Fraction.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 282 (Marble Bay).

TEXADA MINE (No. 240, Fig. E)

By W. C. Robinson

LOCATION: Lat. 49° 43' Long. 124° 34' (92F/10E)
NANAIMO M.D. At Welcome Bay on the southwest coast of Texada Island.

ACCESS: Eight miles by road from Vananda.

OWNER: TEXADA MINES LTD., Box 10, Gillies Bay.

METALS: Iron, copper (production shown in Table 1).

WORK DONE: Drifting and crosscutting, 6,105 feet; raising, 1,096 feet; diamond drilling, 16,431 feet.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1964, pp. 146-151; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 282.

PRICE (No. 92, Fig. E)

LOCATION: Lat. 49° 33.3' Long. 125° 34.2' (92F/12E)
ALBERNI M.D. At approximately 1,300 feet elevation one-half mile west of the south end of Buttle Lake.

CLAIMS: Fifty-five claims, three of which are Crown granted and the remainder held by record.

ACCESS: By road from Campbell River, 56 miles.

OWNER: WESTERN MINES LIMITED, 870, One Bentall Centre, Vancouver 1.

METALS: Copper, zinc, lead, silver, gold.

DESCRIPTION: Massive sulphide mineralization occurs in altered, siliceous, Sicker volcanic rocks.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet covering W 10, 17-20, 55, 72, 87, 100; geochemical soil survey, 2 line-miles.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 218; 1970, p. 285.

PARAMOUNT (MYRA FALLS MINE) (No. 93, Fig. E)

By W. C. Robinson

LOCATION: Lat. 49° 34.3' Long. 125° 35.3' (92F/12E)
ALBERNI M.D. At approximately 1,000 feet elevation on the south slope of Myra Creek valley, 1 mile west of the south end of Buttle Lake.

CLAIMS: Fifty-four located and Crown-granted claims.

ACCESS: By road from Campbell River, 56 miles.

OWNER: WESTERN MINES LIMITED, 870, One Bentall Centre, Vancouver 1.

METALS: Gold, silver, copper, lead, zinc.

DESCRIPTION: Massive, irregular, lens-shaped orebodies occur in altered, acidic Sicker volcanic rocks.

WORK DONE:

Underground geological mapping, 1 inch equals 40 feet; drifting and crosscutting, 3,731 feet; raising, 808 feet; diamond drilling, 29,650 feet.

The decline, being driven at minus 14.8 degrees, was advanced 1,057 feet during 1971. At the end of the year the face of the decline was 2,494 feet from the portal. A pumping system was installed in the decline area. A 6-foot diameter ventilation raise was reamed from 13 level to 10 level, and a main fan was installed at the top of the raise to exhaust air to the No. 10 level portal.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 285.

LYNX MINE (No. 239, Fig. E)

By W. C. Robinson

LOCATION: Lat. 49° 34.5′ Long. 125° 35.5′ (92F/12E)
ALBERNI M.D. On Myra Creek, 1 mile west of the south end of Buttle Lake.

CLAIMS: Fifteen Crown-granted and 40 located claims.

ACCESS: By 55 miles of road from Campbell River.

OWNER: WESTERN MINES LIMITED, 870, One Bentall Centre, Vancouver 1; mine office, Myra Creek.

METALS: Copper, zinc, lead, silver, gold (production shown in Table 1).

WORK DONE: Underground geological mapping, 1 inch equals 40 feet; drifting and crosscutting, 4,969 feet; raising, 3,202 feet; diamond drilling, 33,103 feet. A backfill storage and batching plant was erected at the No. 10 level portal. Other construction included the erection of a 32 by 36-foot extension to the open-pit garage.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1964, pp. 157-166; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 284, 285.

SWAN (No. 95, Fig. E)

LOCATION: Lat. 49° 53.2′ Long. 125° 32.5′ (92F/13E)
NANAIMO M.D. At approximately 1,300 feet elevation on the east shore of upper Quinsam Lake, near the north end.

CLAIMS: SWAN 1 and 2.

ACCESS: Power Commission access road to upper Quinsam Lake.

OWNER: R. B. HOPTON, 24 East 10th Avenue, Vancouver 10.

METALS: Copper, tellurium.

WORK DONE: Stripping, 700 square feet.

IRON RIVER (No. 259, Fig. E)

LOCATION: Lat. 49° 55′ Long. 125° 26′ (92F/14W)
NANAIMO M.D. At approximately 900 feet elevation on Iron River, 14 miles southwest of Campbell River.

CLAIMS: Land lots 41 and 42 and mineral claims IR 1 to 14.

ACCESS: By road from Campbell River, 20 miles.

OWNER: TEXADA MINES LTD., Box 10, Gillies Bay.

METALS: Iron, copper.

DESCRIPTION: A metasomatic magnetite and chalcopyrite deposit occurs in a garnet skarn zone adjacent to a quartz diorite intrusion.

WORK DONE: Surface geological mapping, 1 inch equals 50 feet and 1 inch equals 400 feet; geochemical soil survey, 4 line-miles; and magnetometer survey covering IR 1-14; surface diamond drilling, 20 holes totalling 11,617 feet on IR 1, 2, 5, and 6.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1965, p. 233.

SYLVANITE (No. 94, Fig. E)

LOCATION: Lat. 49° 50.8′ Long. 125° 29.5′ (92F/14W)
NANAIMO M.D. Between 2,300 and 2,400 feet elevation at the headwaters of Iron River, 3 miles southeast of upper Quinsam Lake.
CLAIMS: SYLVANITE, PETZITE.
ACCESS: Power Commission access road to upper Quinsam Lake.
OWNER: R. B. HOPTON, 24 East 10th Avenue, Vancouver 10.
METAL: Tellurium.
WORK DONE: Trenching, 40 square feet on Sylvanite.

LOYAL, PARIS (No. 10, Fig. E)

LOCATION: Lat. 49° 48′ Long. 124° 36′ (92F/15E)
NANAIMO M.D. Between 150 and 210 feet elevation at the north end of Texada Island, approximately 1 mile east from Blubber Bay.
CLAIMS: HUMAK 1 to 6, KAYBEE 2 and 3, GRILL 1 to 9.
ACCESS: By road from Blubber Bay, 1 mile.
OPERATOR: TEXADA MINES LTD., Box 10, Gillies Bay.
METALS: Copper, gold, silver.
DESCRIPTION: Mineralization occurs in an irregular garnet-epidote skarn zone in and adjacent to andesite dykes.
WORK DONE: In 1970: geological mapping and 8 line-miles of electromagnetic surveying by Bellex Mines Ltd. covering Humak 1-6 and Kaybee 2 and 3. In 1971: surface geological mapping, 1 inch equals 50 feet covering Humak 1 and 3; geochemical soil survey, .5 line-mile covering Humak 1, 3 and Kaybee 2, 3; magnetometer survey covering same claims as geochemical survey; trenching, 210 feet on Humak 1; surface diamond drilling, two holes totalling 1,178 feet on Humak 1, 3 and Kaybee 2.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1918, p. 277; Assessment Reports 2918, 2919.

LINDA (No. 104, Fig. E)

LOCATION: Lat. 50° 00′ Long. 124° 05′ (92F/16E)
VANCOUVER M.D. At approximately 3,800 feet elevation at the headwaters of Lois River, on the west side of Mount Diadem.
CLAIMS: LINDA 1 to 23.
ACCESS: By aircraft from Powell River, approximately 35 miles.
OPERATOR: BRITTAIN RIVER SYNDICATE, 202, 850 West Hastings Street, Vancouver 1.
METALS: Copper, zinc, lead, gold, silver.
DESCRIPTION: This is a replacement deposit of chalcopyrite, sphalerite, and galena (gold and silver) in steeply dipping sedimentary and volcanic rocks surrounded by intrusions.
WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering Linda 1-8, 13, and 14; geochemical soil survey, approximately 4 line-miles covering Linda 1, 2, 13, and 14; magnetometer survey covering Linda 2-6 and 13; electromagnetic survey covering Linda 1-6, 13, and 14; trenching, approximately 150 feet on Linda 2, 3, 13, and 14.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 230; Assessment Report 3329.

TORO, MIKE, DOE (No. 261, Fig. E)

LOCATION: Lat. 49° 55.5'-58' Long. 124° 16'-24' (92F/16W)
VANCOUVER M.D. Between 650 and 2,500 feet elevation south of Dodd Lake, near Powell River.

CLAIMS: TORO 1 to 12, MIKE 1 to 15, DOE 1 to 28, COOT 1 to 25.

ACCESS: By logging road from Lang Bay, 16 miles.

OWNER: CARACAS MINING CO. LTD., Box 194, West Vancouver.

METALS: Copper, molybdenum.

DESCRIPTION: The property is underlain by diorite, granodiorite, and other related facies of the Coast Plutonic Complex. A dyke zone with a possible length of 2.5 miles crosses the property.

WORK DONE: Surface geological mapping, 1 inch equals 3,300 feet; trenching, 3,100 feet on Toro, Mike, Doe, Coot.

VANCOUVER 92G

HOW, WING (No. 105, Fig. E)

LOCATION: Lat. 49° 11'-13.5' Long. 122° 08.5'-11' (92G/1E)
NEW WESTMINSTER M.D. At approximately 5,000 feet elevation north and east of Mount Dewdney, 7 miles northeast of Mission City.

CLAIMS: HOW 1 to 39, WING 1 to 8.

ACCESS: By logging road from Norrish Creek, 2 miles.

OWNER: Impad Holdings Ltd.

OPERATOR: W. A. GERBER, Box 8682 Station H, Vancouver 5.

METALS: Nickel, copper, silver.

DESCRIPTION: Pyrite mineralization occurs in granitic rock with chalcopyrite; the major structure direction is northwest-southeast.

WORK DONE: Some geological mapping and geophysical research were done on the property.

COPPER BAY (No. 70, Fig. E)

LOCATION: Lat. 49° 30.5' Long. 123° 20.8' (92G/6W, 11W)
VANCOUVER M.D. On the north side of Gambier Island, 20 miles northwest of Vancouver.

CLAIMS: COPPER BAY, JON, DALE, JD, ANVEL, N & J, BLUE GROUSE, BALD EAGLE, SHARCKS BAY, totalling 50.

ACCESS: By boat from Lions Bay marina, 6 miles to the southeast.

OPERATOR: GAYLORD MINES LIMITED, 736 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: Copper sulphides occur in volcanic rocks near diorite on the Copper Bay claim.

WORK DONE: Eighty line-miles of airborne electromagnetic, magnetometer, and radioactivity surveys.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 62 (incorrectly Sharks Bay), Assessment Report 3087.

HI (No. 106, Fig. E)

LOCATION: Lat. 49° 29.5′-33.5′ Long. 121° 59° - 122° 03′ (92G/8E, 9E)

NEW WESTMINSTER M.D. Between 2,000 and 4,000 feet elevation at the junction of Eagle Creek and Chehalis River, 19 miles north of Harrison Mills.

CLAIMS: HI, totalling 151.

ACCESS: By logging road from Harrison Mills, 25 miles.

OWNER: GARY MINES LTD. (formerly Tremar Minerals Limited), 12, 425 Howe Street, Vancouver 1.

METALS: Copper, zinc.

DESCRIPTION: Undefined showings of chalcopyrite, sphalerite, and abundant pyrite occur in mixed rocks of the Fire Lake Group adjacent to a major granite contact.

WORK DONE: Geochemical silt sampling survey, 237 samples; reconnaissance magnetometer survey, 2.7 line-miles.

LORI (No. 170, Fig. E)

LOCATION: Lat. 49° 42.5′ Long. 122° 56′ (92G/10W)

VANCOUVER M.D. At approximately 3,000 feet elevation on the north side of Mamquam River, 10 miles east of Squamish.

CLAIMS: LORI 1 to 18.

ACCESS: By road from Squamish, 11 miles.

OPERATOR: MINOREX LTD., 308, 1075 Melville Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Sulphide mineralization, consisting of pyrite, chalcopyrite, and molybdenite in fractures and quartz veinlets, is present in diorite and quartz diorite Coast intrusions.

WORK DONE: Geochemical soil survey, 328 samples over 12.45 line-miles covering Lori 1-10, 11, 13, 15, and 17; surface diamond drilling, four holes totalling 80 feet on Lori 1, 8, and 10.

REFERENCE: Assessment Report 3294.

BRITANNIA MINE (No. 244, Fig. E)

By J. W. Robinson

LOCATION: Lat. 49° 36.6′ Long. 123° 08.5′ (92G/11E)

VANCOUVER M.D. The Britannia mine is on the east side of Howe Sound, 40 miles by road north of Vancouver.

ACCESS: North from Vancouver by road, 40 miles.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

METALS: Copper, zinc (production shown in Table 1).

WORK DONE:

During 1971, development work in the Britannia mine consisted of 4,836 feet of track drifting and crosscutting, 8,416 feet of trackless drifting and crosscutting, and 3,834 feet of trackless ramps. This ramp development work completed the internal ramp system in the No. 10 orebody and the ramp system between the 4950 and 5900 levels.

The Alimak raise machine was used to drive 1,372 feet of raise, 2,442 feet of raise was driven using stagings, and 336 feet of slusher subdrifting was driven. The preparatory development required for the proposed sublevel mining was started when the ramp system was completed. This is a new mining method at Britannia mine, and is similar to a sublevel caving method.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 233-246.

HOPE 92H

RAM (No. 107, Fig. E)

LOCATION: Lat. 49° 10.5'-12.5' Long. 120° 17.5'-20' (92H/1W)
OSOYOOS M.D. At approximately 5,000 feet elevation on Cool Creek, 20 miles south-southeast of Princeton.

CLAIMS: RAM 1 to 56.

ACCESS: By helicopter from Princeton, 22 miles.

OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Nicola volcanic rocks are intruded by microdiorite-micromonzonite stocks that carry disseminated chalcopyrite. Tertiary rhyolite and ignimbrite underlie the southern part of the claims.

WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet; geochemical soil and silt survey, 50 samples.

ASH, NOLA (No. 57, Fig. E)

LOCATION: Lat. 49° 07.5' Long. 120° 20.2' (92H/1W)
OSOYOOS M.D. At the junction of McBride Creek and Ashnola River, 25 miles south-southeast of Princeton.

CLAIMS: ASH, NOLA, JAM, Q, CAR, MAX, McBRIDE Fraction, totalling 166.

ACCESS: From Keremeos by the gravel Ashnola forest access road, 27 miles.

OWNER: PRISM RESOURCES LIMITED, 808, 837 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Geological mapping, begun in 1966, was extended to cover unmapped areas of the property. A colour airphoto survey was flown over the area. From this survey a structural interpretation was made in regard to possible faults, faint patterns, and other structural lineaments. In addition, the data, both geological and geophysical, accumulated during the summer of 1970 was analysed statistically by Dr. A. J. Sinclair with the aid of a computer. A magnetometer survey was conducted over Max 3 and 4 claims.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, pp. 219, 220; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 394; Assessment Reports 3158, 3236.

AM (No. 243, Fig. E)

By J. W. Robinson

LOCATION: Lat. 49° 09.8′ Long. 121° 01.3′ (92H/3E)
NEW WESTMINSTER M.D. Three miles south of the Hope-Princeton highway near the western boundary of Manning Park.

CLAIMS: Approximately 170 full size and fractional claims.

ACCESS: By Highway 3 for 31 miles east from Hope, then 3 miles south by mine road.

OWNER: GIANT MASCOT MINES LIMITED, Canam Division, 1131 Melville Street, Vancouver 5.

METALS: Copper, silver, molybdenum.

WORK DONE: No exploration or development work was done during the year. A watchman was maintained on the property to guard the camp and stored machinery. Some survey work was performed to clarify title to certain mineral claims within the group.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 251.

LUCKY FOUR (No. 224, Fig. E)

LOCATION: Lat. 49° 09.8′ Long. 121° 34.7′ (92H/4E)
NEW WESTMINSTER M.D. At approximately 6,200 feet elevation on the north slope of Foley Mountain, 16 miles east of Chilliwack.

CLAIMS: Ten Crown-granted claims including LUCKY FOUR and 30 recorded claims including RICO COPPER, DOT, NAN, KAY, PAT.

ACCESS: By helicopter from Jones Lake, 5 air miles.

OWNER: RICO COPPER (1966) LTD., 2, 821 West Pender Street, Vancouver 1.

METALS: Silver, copper.

DESCRIPTION: Unidentified silver minerals, chalcopyrite, minor bornite, gold, and molybdenite are associated with pyrrhotite, pyrite, and arsenopyrite in a garnetite skarn zone along an argillite-greywacke contact with granodiorite. The main showing is on Lucky Four No. 4 (Lot 989).

WORK DONE: Topography and surface and underground workings mapped; magnetometer survey (testing only); surface diamond drilling, three holes totalling 335 feet on Lucky Four No. 4.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1967, pp. 64, 65; Assessment Report 458.

BEA, GIANT, SWEDE (No. 108, Fig. E)

LOCATION: Lat. 49° 25′-29′ Long. 121° 26′-32′ (92H/5E, 6W)
NEW WESTMINSTER M.D. Between 750 and 3,000 feet elevation on west side of Highway 1, 2 to 6 miles north of Hope.

CLAIMS: BEA, GIANT, SWEDE, MARY G, PAT, P, totalling 136 full claims and fractions.

ACCESS: By logging road from Hope, 1 to 6 miles.

OWNER: KELSO EXPLORATIONS LTD., 411, 470 Granville Street, Vancouver 2.

METALS: Nickel, copper.

DESCRIPTION: Disseminated sulphides of chalcopyrite, pyrite, and nickeliferous pyrrhotite occur in fractured pyroxenite, peridotite, and ultrabasic rocks. Also a nickel saprolite deposit occurs near Schkam Lake.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Bea and Mary G; underground geological mapping, 1 inch equals 400 feet covering the old adit (Mary G claims); geochemical soil survey, 57 samples covering Bea and Mary G; minor trenching and stripping on Mary G and Bea.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 249; Assessment Report 3355.

NI (No. 171, Fig. E)

By G.E.P. Eastwood

LOCATION: Lat. 49° 27'-34.8' Long. 121° 34.5'-45.6' (92H/5E, 12)
NEW WESTMINSTER M.D. Between Harrison Lake and Fraser River, around The Old Settler.

CLAIMS: Approximately 583 NI full-sized and fractional claims, adjoining the Pride of Emory property on the west and extending northwesterly to the east shore of Harrison Lake.

ACCESS: By paved road through Harrison Hot Springs to Greenpoint Park, thence north along Harrison Lake by logging road to Bear Creek camp at mouth of Cogburn Creek. Logging roads extend up the valleys of Cogburn, Talc, and West Talc Creeks.

OWNER: Giant Explorations Limited.

OPERATOR: NICKEL SYNDICATE (joint exploration venture between Giant Explorations Limited and Giant Mascot Mines Limited), 1131 Melville Street, Vancouver 5.

METALS: Nickel, copper.

DESCRIPTION:

The area of the claims lies within the Coast Mountains, immediately east of Harrison Lake where the topography is generally steep to rugged. Drainage is mostly into Harrison Lake via Cogburn and Talc Creeks. The area is thickly forested, but recent logging has denuded large sections of the floors and lower walls of Cogburn, Talc, and West Talc Creek valleys. Undergrowth is light to moderate.

MAPPING AND EXPLORATION: Parts of the area were geologically mapped by C. H. Crickmay in 1924 and 1926, by H. C. Horwood in 1935, and by W. E. Snow in 1938-39, and their maps were incorporated by C. E. Cairnes in Map 737A of the Geological Survey of Canada. Mapping in 1969 by B. E. Lowes for a thesis at the University of Washington was incorporated by J.W.H. Monger in Map 12-1969, which is a revision of 737A. In 1966 the writer examined some of the ultramafic stocks shown on Map 737A, and in 1971 returned briefly to examine nickel discoveries and do more reconnaissance.

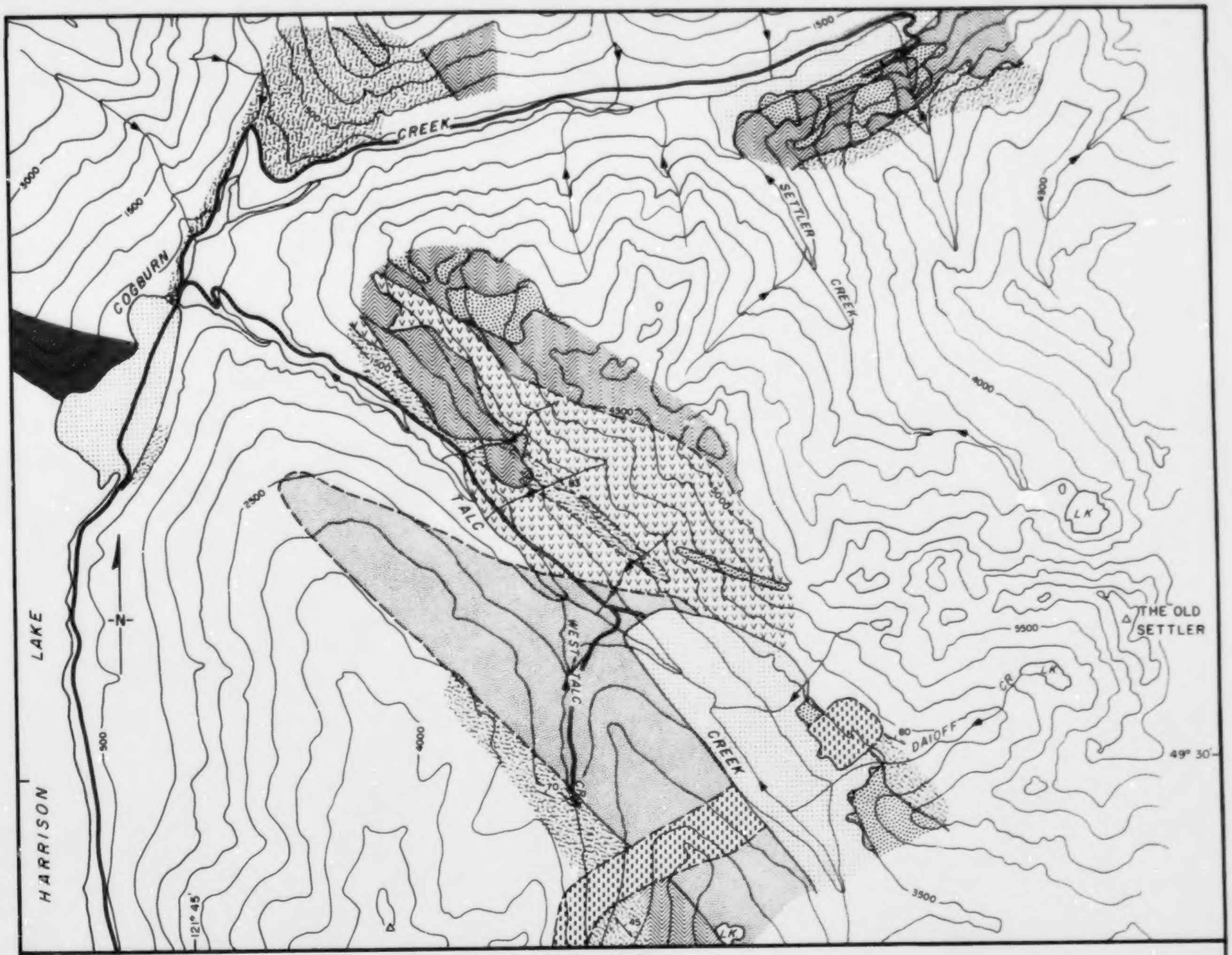

CREEK
COGBURN
SETTLER
CREEK
TALC
WEST
TALC
CR
CREEK
DAIOFF
CR
LK
LK
LK
THE OLD SETTLER
HARRISON
LAKE
N
49° 30'
121° 45'
1500
1500
1500
3000
4000
4000
4000
3500
3900
2500
5200
5000
900
900
80
70
45

Figure 41

GEOLOGICAL SKETCH MAP OF THE COGBURN - TALC CREEKS AREA

░	Drift and alluvium
■	Granodiorite, orbicular in part
▩	Quartz diorite, diorite
▨	Diorite, gabbro, norite, hornblendite. Includes small patches of pyroxenite
▒	Pyroxenite, peridotite
░	Altered pyroxenite and peridotite
▧	Metavolcanic (?) rocks
▤	Metasedimentary rocks
//	Contact; defined, assumed
⊥	Bedding
⊥	Schistosity

Scale 1/2 0 1/2 1 1 1/2 2 Miles

Scale 1 0 1 2 3 4 Kilometres

The NI claims were located in 1969 and 1970. The Nickel Syndicate conducted an airborne magnetometer survey and extensive reconnaissance soil sampling in 1970, and selected six areas for detailed investigation in 1971. Five of these areas were subjected to grid-controlled geological mapping, soil sampling, and magnetometer surveying, and a grid was laid out on the sixth area. I. S. Rote made a geological reconnaissance of the property at 1 inch to 1,000 feet, and prospecting and reconnaissance soil sampling were conducted in parts of the claims area not covered in 1970. Mineralization found in two of the selected areas was diamond drilled.

GENERAL GEOLOGY: Figure 41 is a compilation of the writer's mapping at a scale of 1:50,000 and mapping by R. Gonzalez and R. Wehr of the selected areas at a scale of 1 inch to 200 feet, with some additional information taken from Monger's compilation at a scale of 1:250,000. Generalizations of the company mapping were necessitated by the reduction of scale, and some re-interpretation was required by the writer's mapping adjacent to the selected areas.

The area is underlain by metasedimentary rocks, probable metavolcanic rocks, and a complex array of intrusive rocks. The metavolcanic rocks occur, as far as is known, only in the middle part of Talc Creek valley and on the ridge to the northeast, whereas metasedimentary rocks occur extensively in the western and northern parts of the area. Some metasedimentary rock was mapped by Gonzalez and Wehr east of Settler Creek. The intrusive rocks occur as many separate intrusions through the area, the largest being along Cogburn Creek and extending north beyond the area.

The metasedimentary rocks are phyllites and schists which are predominantly light green and dark grey in colour. Light grey and light buff quartz-muscovite schists are exposed immediately southeast of the Bear Creek camp and again 1.5 miles to the northwest. Pink garnet is developed in the rock near some intrusive contacts. Along Cogburn Creek and West Talc Creek the rock is markedly banded, mostly in grey and green tones. Prominent partings parallel to the banding define beds one-half to 2 inches thick. The banding is generally parallel to a pervasive schistosity, but was seen to cross it in one exposure, suggesting that the rocks may be isoclinally folded. The measured attitudes of banding and foliation range from a strike of 320 degrees and dip of 45 degrees northeast to a strike of 290 degrees and dip of 85 degrees northeast, and are generally steeper and more westerly toward the northwest. Monger assigned most of these rocks to the Chilliwack Group, of Carboniferous or Permian age.

Scattered outcrops of fine-grained green hornblende and feldspar-hornblende schist occur in the bed of Talc Creek and on the hillside to the northeast and east. The rock appears to be correlative with Monger's unit Bb and with the 'altered basic' of Gonzalez and Wehr. The mineral composition suggests that the rock is of igneous rather than sedimentary derivation, and the fine grain size suggests that it was volcanic rather than intrusive. The age is not known.

The intrusive rocks include mafic and ultramafic rocks and two relatively small areas of felsic rocks. The felsic rocks were seen in contact with metasedimentary rocks only, whereas the others appear to intrude both metasedimentary and probable metavolcanic rocks. The relative ages of the intrusive rocks are uncertain.

A northwesterly trending body of grey to dark grey ultramafic rock crosses Talc Creek between West Talc Creek and the upper forks at the foot of Mount McNair. An extension northwest of West Talc Creek is sketched from Monger's compilation. The width of the body near Mount McNair suggests that it should continue to the southeast. It was not observed in actual contact with any other rock, but two small dykes of similar composition transect the banding in metasedimentary rocks some 200 feet southwest of the contact on West Talc Creek. The outline of the body is also transgressive to the structural trend in the metasedimentary and the probable metavolcanic rocks. The rock is fractured to varying degrees, but generally does not show much foliation. Southeast of Daioff Creek, however, it shows a pervasive schistosity which is pronounced in some drill core. Brown pyroxenite was identified in a few outcrops near the northeast contact, but generally the rock appears to be strongly altered, and its original nature is not apparent macroscopically. However, a thin section of a specimen from southeast of Daioff Creek consists predominantly of colourless pyroxene; tremolite, talc, and trace chlorite are visually estimated to make up 15 per cent of the rock. The pyroxene is crushed and altered along crystal boundaries and along weak microshears, and tremolite needles penetrate deeply into the crystals from these crush zones. Accessory magnetite appears to have been interstitial to the pyroxene. An estimated 1 per cent pyrrhotite and trace chalcopyrite occur as small blebs generally strung out along the microshears. Southwest of Talc Creek the rock contains sporadic serpentine and near the southwest contact is strongly serpentinized. This alteration appears to be controlled by fractures with lengths of several feet or tens of feet. A thin section of typical rock near the contact consists, as visually estimated, of 30 per cent colourless pyroxene, 50 per cent antigorite, 13 per cent carbonate, and 7 per cent magnetite. The section is crossed by several carbonate-antigorite microshears, and the intervening pyroxene is criss-crossed by antigorite. It contains no sulphides and no relics or ghosts of olivine.

Two irregular bodies and scattered lenses of mafic rock trend northwest along the northeast slope of Talc Creek and appear to correspond to unit Bd on Monger's compilation. The rock consists mainly of dark green diorite with minor gabbro and norite. Patches of fairly fresh pyroxenite and peridotite are enclosed in the northeast body. A small patch of somewhat altered peridotite is adjacent to and contains inclusions of diorite where the main road crosses the second tributary of Talc Creek. The evidence is thus conflicting as to which rock is enclosed in which. To the southeast, two outcrops of pyroxenite appear to define a narrow, west-northwest trending band in green schist.

North of Cogburn Creek, Nickel Syndicate mapping shows a large patch of peridotite in metasedimentary rocks, and farther east, a contact between metasedimentary rocks and diorite. This contact coincides approximately with the southwest contact of a large mass of quartz diorite on Monger's compilation. However, the rock is uniformly quartz-free, dark, and mafic, with black hornblende predominating over white feldspar. Pyroxene occurs sporadically, and locally the rock grades to hornblende pyroxenite. The rock is fine to medium grained. It is cut by narrow dykes of very coarse-grained black hornblendite, which in turn are cut by feldspar-rich dykelets.

South of Cogburn Creek and east of Settler Creek the Nickel Syndicate has mapped an area of diorite and minor gabbro and norite which encloses irregular patches of pyroxenite. The area is crossed by several dyke-like bodies of green pegmatitic hornblendite and diorite. The writer examined a section of these rocks toward the end of the logging road in the course of sampling. The ordinary diorite is medium grained and consists essentially of white plagioclase and black hornblende, with the hornblende generally predominating. It is fresh save for some chloritization along shear zones. A striking coarse-grained phase, consisting of equal proportions and equi-sized grains of the two minerals, occurs about 900 feet from the end of the road. The dyke-like bodies also consist essentially of plagioclase and hornblende, but the hornblende is green rather than black and the grain size ranges from coarse to pegmatitic. The plagioclase is generally very subordinate, but locally forms pegmatitic segregations in which 'float' euhedral hornblende crystals up to 3 centimetres long. The pyroxenite is medium grained and dark grey-brown in colour. A thin section discloses at least three varieties of pyroxene constituting about 90 per cent of the rock: pale pink hypersthene, brown clinopyroxene, and colourless clinopyroxene. Accessory magnetite and pyrrhotite were visually estimated at 3 and 4 per cent in this slide. The pyrrhotite forms small elongated blebs interstitial to the pyroxene crystals. Minor chlorite has formed along fractures. Traces of chalcopyrite were noted in a few places in the pyroxenite.

Generally the mafic and ultramafic rocks are spatially associated, with a few exceptions already noted, but age and genetic relations are not clear. The most likely possibilities are (1) that they are differentiates from the same magma, or (2) that a dioritic magma engulfed and partially assimilated earlier formed ultramafic bodies, producing minor gabbro and norite as hybrids. Neither explanation is wholly satisfactory, and other possibilities cannot be excluded. The age of these intrusions can only be said with certainty to be post-Chilliwack and pre-Pleistocene.

A dyke-like body of quartz diorite is shown on Monger's compilation intruding Chilliwack metasedimentary rocks northeast of Talc Creek and extending just to the contact of the large ultramafic body. Actually, this body appears to transect the northeast contact of the ultramafic body. A small body of quartz diorite is shown west of West Talc Creek on Monger's compilation. It was not examined, but as seen from across the valley it appeared to be a dyke-like body dipping gently northward. Granitic rock is exposed in a road cut at 3,500 feet elevation on the east side of the valley and also occurs as lenses in metasedimentary rock 1,200 feet to the south. The observed outcrops suggest a dyke-like body extending from east of Talc Creek to west of West Talc Creek, as shown on Figure 41. However, mapping by the Nickel Syndicate on the ridge between the creeks shows only a few widely scattered outcrops of diorite, gabbro, and peridotite across the trend of the granitic rock. The outcrop on the road on the west slope of this ridge is marked by a magnetic low, and it is likely that sporadic similar lows across the ridge represent small areas of thinly covered granitic rock. It is suggested that the main body continues beneath the ridge, but that erosion has exposed only apophyses at higher elevations. The rock northeast of Talc Creek is coarse grained and weakly foliated. On the fresh surface it is speckled with abundant mafic minerals, giving it an overall grey appearance, but it weathers distinctively white. It consists of feldspar, quartz, hornblende, biotite, chlorite, relatively abundant accessory magnetite, and traces of pyrite and chalcopyrite. In places two feldspars can be distinguished by colour, suggesting that there is appreciable K-feldspar and that the rock is actually granodiorite. The rock at 3,500 feet elevation east of West Talc Creek is weakly foliated, very coarse grained, and contains orbicular nests of biotite 1 to 2 inches wide. The matrix of the orbicules consists of feldspar, quartz, and biotite which is largely altered to chlorite.

North of the Cogburn Creek delta, diorite and quartz diorite intrude the Chilliwack metasedimentary rocks. The proportions of feldspar and mafic minerals are reversed as compared with diorites elsewhere in the area, and the mafics are largely biotite and chlorite instead of hornblende. These rocks appear to be related to the common Coast Range quartz diorite intrusions rather than to the mafic diorites.

STRUCTURAL GEOLOGY: Schistosity in the metasedimentary rocks and the green schists and banding in the metasedimentary rocks strike northwest to west-northwest and dip northeast, generally steeply. Isoclinal folding is suggested by banding crossing the schistosity in a road ditch outcrop near West Talc Creek and by the slim wedge of metasedimentary rocks in the green schists northeast of Talc Creek. Plunging folds could explain the absence of green schists north of Cogburn Creek; however, a major fault along Cogburn Creek could be postulated on present knowledge.

Shear zones and numerous fractures are evident in areas of good exposure. Along the branch logging road east of Settler Creek the dominant narrow shear zones strike 060 degrees and 015 degrees and dip 70 and 80 degrees easterly respectively, although the dominant topographic linears strike slightly west of north. Near the southwest contact of the large ultramafic body, serpentinization appears to be controlled by fractures striking 145 and 075 degrees and dipping 35 and 50 degrees southerly respectively. These fractures and the schistose character of the ultramafic body southeast of Daioff Creek are probably indicative of some movement along the contacts, but there is no necessity, on present knowledge, to postulate large-scale faulting.

MINERALIZATION: Pyrite, pyrrhotite, and chalcopyrite have been found in various parts of the area. Pyrite is sparingly distributed through most of the rocks of the area, but appears to be lacking in parts of the large ultramafic body. Pyrrhotite occurs widely but sparingly in the large ultramafic body, in pyroxenite east of Settler Creek, and to a lesser extent in some diorite bodies. It occurs as grains and blebs interstitial to pyroxene crystals, as scattered grains along microshears, and as narrow fracture veinlets less than an inch long. A small copper showing is reported to occur just above the Cogburn Creek road 1.8 miles in direct line northeast of the mouth of Talc Creek; it was not seen by the writer. Chalcopyrite is sparsely disseminated in the pyroxenite on the spur logging road east of Settler Creek, and in short sections of core from diamond-drill hole 71-8 in altered pyroxenite southeast of Daioff Creek.

Four grab samples were taken by the writer in 1966 and assayed for total nickel. Ten chip samples were taken in 1971 and assayed for both total and acid-soluble nickel, using aqua regia extraction for the latter determination. Spectrochemical analyses were made of all samples, and the one showing the highest copper was assayed for that metal. The locations and results are given in the following table. The 1971 sampling southeast of Daioff Creek was done by selecting four identifiable points and collecting chips from available edges within a radius of 10 or 20 feet from the point. The chips were cleaned of most of their weathered surface and combined as a single sample. On the logging road spur east of Settler Creek, 118 feet of the road cut was sampled, covering the section with reported mineralization. Chips were taken every 2 feet in sections of variable lithology and every 3 or 4 feet in sections of uniform lithology. A new sample was started after each major change in lithology.

The acid-soluble nickel represents the nickel contained in sulphides plus an unknown but probably small amount leached from silicates. The results show that even if an extreme assumption of leaching of 50 per cent of the silicate nickel is made, three of the samples from southeast of Daioff Creek contained only 0.02 per cent silicate nickel, and therefore contained 0.19 to 0.22 per cent sulphide nickel. Sample No. 7 evidently contained a larger proportion of silicate nickel as well as a smaller total amount; it was taken next to the northeast contact of the body. These results are to be compared with Nickel Syndicate averages of 0.22 per cent nickel obtained from systematic rock chip sampling over an area of approximately 80 acres and 0.20 per cent from diamond-drill core. The results from east of Settler Creek show low total nickel and indicate a high proportion of silicate nickel. The company made flotation tests on bulk samples taken from southeast of Daioff Creek, but the results are not known.

ASSAYS OF SAMPLES FROM COGBURN-TALC CREEKS' AREA

Sample	Location	Lithology	Total Nickel	Soluble Nickel	Copper
			per cent	*per cent*	*per cent*
1	West Talc Cr., 0.65 mile above mouth	Altered ultramafic	0.21	—	trace*
2	Ridge summit, 1.3 miles NE. of mouth West Talc Cr.	Rusty coarse-grained hornblendite	trace*	—	X*
3	Bed of Talc Cr., 1,200 ft. below mouth West Talc Cr.	Hornblende pyroxenite, partly serpentinized	0.18	—	trace*
5†	2,300 ft. east of mouth of Daioff Cr.	Altered pyroxenite	0.25	—	trace*
7	Southeast of Daioff Cr., around DDH 71-7	Altered ultramafic	0.18	0.15	trace*
8	Same area, base of outcrop NE. of talus slide	Altered ultramafic	0.21	0.20	trace*
9	Same area, around DDH 71-9	Partly altered pyroxenite	0.24	0.23	trace*
10	Same area, around DDH 71-4 and 71-5	Altered ultramafic	0.23	0.22	trace*
11	East of Settler Cr., 0 to 8 ft. from end of spur rd.	Altered pyroxenite	0.03	0.01	trace*
12	East of Settler Cr., 8 to 18 ft. from end of spur rd.	Mostly medium-grained diorite	0.01	0.01	trace*
13	East of Settler Cr., 18 to 26 ft. from end of spur rd.	Mostly medium-grained diorite	0.03	0.02	X*
14	East of Settler Cr., 26 to 47 ft. from end of spur rd.	Pyroxenite	0.03	0.02	X*
15	East of Settler Cr., 47 to 64 ft. from end of spur rd.	Pegmatitic and medium-grained diorite	0.02	0.01	X*
16	East of Settler Cr., 64 to 118 ft. from end of spur rd.	Pyroxenite	0.08	0.06	0.033

* Spectrochemical determination only

X Present in small but measurable amount

† Approximately same area as sample 10

WORK DONE:

Prospecting and reconnaissance geological mapping of the claims area was essentially completed in 1971. More than 100 miles of surveyed grid lines was laid out in six selected areas, and five of these areas were subjected to detailed geological mapping, soil sampling, and magnetometer surveying. Additional reconnaissance soil and stream sediment sampling was done in 1971, and more than 3,000 samples were collected and analysed for nickel and copper. The magnetometer surveying totalled 104 line-miles. Mineralization found in two areas was investigated further. East of Settler Creek three holes were diamond drilled to an aggregate length of over 1,500 feet, and 10.6 line-miles of induced polarization surveying was done over adjacent covered ground. Southeast of Daioff Creek 17 holes were diamond drilled to an aggregate length of over 4,000 feet.

REFERENCES: Crickmay, C. H., 1930, *Natl. Mus. Canada,* Bull. 63 pp. 33-113; Horwood, H. C., 1936, *Geol. Surv., Canada,* Paper 36-4; *Geol. Surv., Canada,* Map 737A; Paper 69-47 (with Map 12-1969); *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 248; Assessment Reports 2469, 2583, 2801, 3155, 3280, 3356, 3442, 3580, 3614, 3615, 3635.

STERLING (No. 252, Fig. E)

LOCATION: Lat. 49° 17' Long. 121° 36' (92H/5E)
NEW WESTMINSTER M.D. At approximately 2,000 feet elevation on Halfway Creek, 2.5 miles south of Laidlaw.

CLAIMS: STERLING 1 to 10.

ACCESS: By road from Laidlaw, 3.5 miles.

OWNER: HUNER MINES LIMITED, 20624 – 113th Avenue, Maple Ridge.

METALS: Copper, silver, gold.

WORK DONE: Road construction, 1 mile (from Jones Lake road to the minesite); trenching, 78 feet on Sterling 1-4; underground work, 14 feet on Sterling 1; surface diamond drilling, one hole totalling 100 feet on Sterling 2.

VALLEY VIEW (No. 110, Fig. E)

LOCATION: Lat. 49° 15.7' Long. 121° 50.5' (92H/5W)
NEW WESTMINSTER M.D. At approximately 300 feet elevation on the south side of Mount Agassiz, 4 miles west of Agassiz.

CLAIMS: MIDNIGHT 1 to 4, REX 3 and 4, JAY 1 and 2.

ACCESS: By road from Highway 7, 1 mile.

OWNER: HUNER MINES LIMITED, 20624 – 113th Avenue, Maple Ridge.

METALS: Copper, silver.

WORK DONE: Road repair, 1 mile; trenching, 2,470 square feet on Midnight 1-4; stripping, 24,000 square feet on Midnight 1, 2, 4 and Rex 4.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1966, p. 62 (PF, Midnight); *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 247 (Rex).

JOC, JAC (No. 111, Fig. E)

LOCATION: Lat. 49° 18.5'-20.5' Long. 121° 52.5'-55' (92H/5W)
NEW WESTMINSTER M.D. On the west side of Weaver Creek, 6 miles west-northwest of Harrison Hot Springs.

CLAIMS: JOC 1 to 12, JAC 1 to 24, 27 to 30.
ACCESS: By road from Harrison Mills, 8 miles.
OWNER: Erin Explorations Ltd.
OPERATOR: COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.
DESCRIPTION: The property is underlain by acid and intermediate volcanic rocks of the Harrison Lake Formation of Jurassic age. No mineralization is known.
WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 1,000 feet and geochemical rock survey covering all claims.
REFERENCE: Assessment Report 3490.

IAM (No. 114, Fig. E)

LOCATION: Lat. 49° 21.5′ Long. 121° 55′ (92H/5W)
NEW WESTMINSTER M.D. At approximately 2,600 feet elevation on Sakwi Creek, 7 miles northwest of Harrison Hot Springs.
CLAIMS: IAM 1 to 4, 9 to 24; SIR 1 to 4 and 5 and 6 Fractions; MARY J 1 to 4.
ACCESS: By Hemlock Valley ski road from Harrison Mills, 13 miles.
OPERATOR: COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.
METALS: Copper, lead, zinc.
DESCRIPTION: Thin stringers of sphalerite, minor chalcopyrite, and galena with barite occur in acid volcanic rocks of the Jurassic Harrison Lake Formation.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 5 line-miles covering Iam 2, 4, 20, 22 and Sir 5 and 6 Fractions.
REFERENCE: Assessment Report 3440.

HARRISON, LUCKY JIM (No. 113, Fig. E)

LOCATION: Lat. 49° 19′ Long. 121° 56.5′ (92H/5W)
NEW WESTMINSTER M.D. At approximately 1,000 feet elevation on Chehalis River, 8 miles west of Harrison Hot Springs.
CLAIMS: HARRISON, LUCKY JIM, CHEHALIS, JOYS, BONANZA, POT, HILL, LH, C, DOROTHY, LYN, etc., totalling 214.
ACCESS: By road from Harrison Mills, 7 miles.
OPERATOR: COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.
METALS: Copper, zinc, silver, lead, gold.
DESCRIPTION: Massive sulphides consisting of a fine intermixture of sphalerite, chalcopyrite, and galena in a pyrite and barite gangue occur as a stratiform lens in acid and intermediate volcanic rocks of the Jurassic Harrison Lake Formation.
WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 1,000 feet covering all claims; geochemical rock survey covering all claims and geochemical soil survey covering Harrison 1, 3 and 1 Fraction; induced polarization survey covering Harrison 1 and 3; surface diamond drilling, six holes totalling 2,497 feet on the Lucky Jim, Harrison 1, 2, 15 and 1 Fraction.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1962, p. 93; Assessment Reports 2833, 2998.

TOP (No. 109, Fig. E)

LOCATION: Lat. 49° 28′-30′ Long. 121° 57′-59′ (92H/5W)
NEW WESTMINSTER M.D. At approximately 3,000 feet at the northeast end of Chehalis Lake.

CLAIMS: TOP 1 to 12, 14 to 25, 1 Fraction.

ACCESS: By the Canfor logging road from Harrison Mills, 22 miles.

OWNER: COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.

DESCRIPTION: The property is underlain by acid to intermediate volcanic flows and tuffs of the Jurassic Harrison Lake Formation.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 1,000 feet covering all claims; geochemical silt and soil survey, 1 line-mile covering Top 20-25.

REFERENCE: Assessment Report 3491.

RR, FE (No. 112, Fig. E)

LOCATION: Lat. 49° 21′ Long. 121° 57′ (92H/5W)
NEW WESTMINSTER M.D. East side of Chehalis River, 9 miles west-northwest of Harrison Hot Springs.

CLAIMS: RR 1 to 8, FE 1 to 6.

ACCESS: By road and trail from Harrison Mills, 10 miles.

OPERATOR: COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.

DESCRIPTION: The property is underlain by acid flows and intrusions, banded tuffs, and minor intermediate pyroclastic rocks of the Jurassic Harrison Lake Formation.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet and geochemical soil and rock survey, 2 line-miles covering FE 1-6.

REFERENCE: Assessment Report 3441.

EVE, TAX, EBJ (No. 11, Fig. E)

LOCATION: Lat. 49° 25′-30′ Long. 121° 12′-18′ (92H/6)
NEW WESTMINSTER M.D. Approximately 10 miles northeast of Hope, northwest and southeast of Jessica.

CLAIMS: EVE, TAX, EBJ, MAK, GWH, TOY, and MLJ, totalling approximately 155.

ACCESS: By 12 miles of private logging road northeast from Hope.

OWNERS: M. M. MENZIES, 5585 McMaster Road, Vancouver 8 and G. W. HORNBY, 4678 West 12th Avenue, Vancouver 8.

DESCRIPTION: Ultramafic rocks that cut diorite and sedimentary rocks are exposed.

WORK DONE: An airborne magnetometer survey was carried out covering 15 square miles. A geological reconnaissance of the property was done and eight holes, totalling 991 feet, were drilled in 1970 and 1971.

REFERENCES: Assessment Reports 2999, 3000, 3620.

EMANCIPATION MINE (No. 61, Fig. E)

LOCATION: Lat. 49° 29.5′ Long. 121° 16′ (92H/6W)
NEW WESTMINSTER M.D. Two miles north of Jessica in the Coquihalla River valley, 10 miles northeast of Hope.

CLAIMS: Mineral Lease M-28 comprising the Crown-granted claims SUNSHINE (Lot 1300) and RAYMOND (Lot 1299).

ACCESS: Northwest from Hope by a good logging road located on the abandoned railway grade, and the final 2 miles by foot.

OWNERS: JON STEWART and MYRTLE E. DORKO, Box 4, Sardis.

METALS: Gold, silver, copper.

WORK DONE: Underground geological mapping and chip sampling.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1933, pp. 175, 176; *Geol. Surv., Canada*, Mem. 139, p. 136; Assessment Report 3015.

MORGAN (No. 283, Fig. E)

LOCATION: Lat. 49° 29.5′ Long. 121° 28.5′ (92H/6W)
NEW WESTMINSTER M.D. Between 3,600 and 3,800 feet elevation on Emory Creek, 12 miles north of Hope.

CLAIMS: MORGAN 1 to 16.

ACCESS: By road from Highway 1, 1.7 miles west.

OWNER: STARLETTA MINES LTD., 4550 East Hastings Street, North Burnaby.

METALS: Copper, nickel.

DESCRIPTION: The claims are underlain by quartz diorite intruded into sedimentary and volcanic rocks, with altered phases consisting of schists and amphibolites. Heavy overburden obscures the rocks on large parts of the group. The geological structure is complex. The claims appear to be located on the west flank of a northwest plunging synclinal structure.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 370 samples covering Morgan 1-4 and 14-16; magnetometer survey, 7 line-miles covering same claims as geochemical survey; road construction, 3,200 feet on Morgan 1 and 2.

PRIDE OF EMORY MINE (No. 242, Fig. E)

By J. W. Robinson

LOCATION: Lat. 49° 28.3′ Long. 121° 29.9′ (92H/6W)
NEW WESTMINSTER M.D. At the head of Stulkawhits (Texas) Creek, which flows eastward into the Fraser River, 8 miles north of Hope.

ACCESS: By a gravel road about 5 miles long which leads from the Trans-Canada Highway, 8 miles north of Hope, to the mine plant at the 2600 level.

OWNER: GIANT MASCOT MINES LIMITED, 1131 Melville Street, Vancouver 5.

METALS: Nickel, copper (production shown in Table 1).

WORK DONE:

The Giant Mascot mill and surface facilities, including office, warehouse, miners' changehouse, compressor house, and assay laboratory, all destroyed by fire on August 2, 1970, were rebuilt during the autumn of 1970 and spring of 1971. Construction problems were complicated by a 34-foot snowfall that occurred during the winter. In spite of the difficulties, the work was completed with few injuries. The new concentrator was finished and put into operation on May 14, 1971. Within a short time the processing rate reached

1,750 short dry tons per 24 hours, and, except for test periods, this rate has been maintained. The concentrates produced are shippped to Sumitomo Metal Mining Company for processing at their plant in Niihama, Japan.

On August 2, 1971, the Honourable Frank Richter, Minister of Mines and Petroleum Resources, officially opened the Giant Mascot mill at a ceremony attended by about 150 officials, dignitaries, and other interested mining people. August 2nd was chosen for the official ceremonies because it was the anniversary date one year after the disastrous fire which destroyed the former mill and surface facilities.

During the period following the fire and prior to the completion of the construction of the surface facilities, underground development work was severely restricted by the lack of compressed air and the lack of changehouse facilities for the miners. However, the shaft was retimbered, and development continued on the 3050 level to the Chinaman ore zone, and on 2600 level to the Climax, Trail, and Chinaman ore zones. More normal activity became possible in May when the development of the 4600 orebody and work on the three long raises for the development of the 1600 and 4400 ore zones, that had been interrupted, were resumed.

Development work during 1971 consisted of:

Drifting and crosscutting	4,894 feet
Raising	3,242 feet
Diamond drilling	61,840 feet
Blasthole drilling	149,435 feet

Production was derived from the 4600, 2200, 1500, and 4300 ore zones. Ore was produced from the 4600 zone on the 3250 and 2950 levels. Development of the 4600 orebody between 2600 and 2750 levels was completed, and diamond drilling and blasthole drilling were started. Development of the 1600 ore block below 3250 level was completed and the stope is ready for production.

A crosscut on 3250 level, which was driven last year to the 4400 ore zone, is being extended to the 4600 ore zone to provide better ventilation and access. Raises from the 2950 level were completed in the 1600, 4400, and 4600 ore zones.

On the 2600 level, the 2620 heading was driven north for 1,800 feet to the Chinaman ore zone, and diamond drilling was done to delineate the orebody. A branch heading was driven toward the Climax orebody. A heading was driven on 3050 level to intersect the Chinaman orebody. Two raises were driven from 3050 level to 3275 level and one raise was continued to 3,550 elevation to explore and develop the Chinaman orebody.

The tailings dam designed by Golder Brawner and Associates in conjunction with Giant Mascot Mines staff is being raised and extended under contract with Emil Anderson Construction of Hope.

The 6 miles of main powerline servicing the mine was completely rebuilt and reconductored. All of the destroyed electrical distribution facilities and substations in the plant area were relocated and replaced.

The compressor installation destroyed by fire in 1970 was replaced by three units producing a total of 5,000 cubic feet per minute, and the crushing and flotation concentrating installation was designed to handle 1,500 tons of ore per day.

At year end there were 81 men employed underground, 18 in the crusher and concentrator, 27 on surface and in the shops, and 32 on staff for a total of 158 employees.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 248.

BOB, BON (No. 12, Fig. E)

LOCATION: Lat. 49° 23.5'-26' Long. 120° 27.5'-31' (92H/7E, 8W)
SIMILKAMEEN M.D. At approximately 2,000 feet elevation from 3 to 8 miles south of Princeton and east of the Similkameen River.

CLAIMS: BOB, BON, LOU, FIN, LEE, totalling 79, and KNOB HILL (Lot 806).

ACCESS: By road from Princeton, 3 to 8 miles.

OWNER: KNOB HILL EXPLORATIONS LIMITED, 1211, 1030 West Georgia Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Copper mineralization, primarily malachite with minor chalcopyrite, is noted in fractured quartz on Bon claim group. Rock types include Nicola volcanic rocks, Copper Mountain intrusions, and Tertiary sedimentary rocks.

WORK DONE: Geochemical survey covering Fin 1-11, and Bob 57-60, 62, 67 in 1970; surface diamond drilling, three holes totalling 1,150 feet on Knob Hill (Lot 806), Bob 8, and Lee 25 in 1971.

REFERENCES: Assessment Reports 920, 1224, and 2850.

ENTERPRISE, MARQUIS OF LORNE (No. 172, Fig. E)

LOCATION: Lat. 49° 16.5'-18.5' Long. 120° 29.5'-35.5' (92H/7E, 8W)
SIMILKAMEEN M.D. Between 3,000 and 4,500 feet elevation 12 miles south of Princeton, just south of Copper Mountain, east side of Similkameen River.

CLAIMS: ENTERPRISE (Lot 644), MARQUIS OF LORNE, ELK 1 to 8, ILK, ILK 1 to 3, 5 to 8, 10 and 11, NI, NI 1 to 7, FRI 1 to 12, 14 to 34, PR 1 to 6, U & I, KN 1 and 2, KN 1 Fraction, and Mineral Leases M-48, M-51, M-56, M-68, M-70, comprising 44 Crown-granted claims, totalling 114.

ACCESS: By road from Princeton, 19 miles.

OWNER: Kalco Valley Mines Ltd.

OPERATOR: NEWMONT MINING CORPORATION OF CANADA LIMITED, 1203, 355 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The property covers the south contact of the Copper Mountain stock (syenite, monzonite, diorite). Chalcopyrite and bornite occur within the stock near its contact, and chalcopyrite, pyrite, and pyrrhotite occur within the Nicola volcanic rocks. The main showings are on the Enterprise (Lot 644), Reco (Lot 1509), and Skagit No. 1 Fraction (Lot 2629) Crown-granted claims and Marquis of Lorne located claim.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering nine Crown-granted claims; magnetometer survey, 16 line-miles and induced polarization survey, 9.5 line-miles covering Mineral Leases M-51 and M-56; surface diamond drilling, three holes totalling 2,270 feet on Seattle (Lot 2305) and Tacoma (Lot 2306).

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 386 (Ilk, Elk, Fri, PR); Assessment Reports 2846, 2847.

OX (No. 256, Fig. E)

LOCATION: Lat. 49° 16′ Long. 120° 30′ (92H/7E)
SIMILKAMEEN M.D. At approximately 3,700 feet elevation on east side of Similkameen River, opposite the mouth of Sunday Creek.
CLAIMS: OX 1 to 6.
ACCESS: By road from Princeton, 12 miles.
OWNER: KECHIKA MINES LTD., 420 Howe Street, Vancouver 1.
METALS: Copper, silver, gold.
WORK DONE: Stripping, 300 by 14 by 10 feet on Ox 5 and 6.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 289.

SIMILKAMEEN MINE (INGERBELLE) (No. 174, Fig. E)

By David Smith

LOCATION: Lat. 49° 20.2′ Long. 120° 33.3′ (92H/7E)
SIMILKAMEEN M.D. On Highway 3, 13 miles south of Princeton.
CLAIMS: INGERSOLL BELLE, INVINCIBLE, LELA, RED BUCK, etc., totalling 66.
ACCESS: By Highway 3, 13 miles from Princeton.
OWNER: SIMILKAMEEN MINING COMPANY LIMITED, Box 520, Princeton.
METAL: Copper.
WORK DONE:

In 1971, the relocation of Highway 3 was completed.

Mill construction moved rapidly ahead and at the end of 1971 the work was 90 per cent completed. The concentrator is rated at 15,000 tons per day. At Smelter Lake, two starter dams were completed and the bridge to carry the tailings line over the Similkameen River was also completed.

During 1971, 13,000,000 tons of waste rock and overburden was removed. Much of this material was used in the building of the new highway.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 385.

RAY (No. 115, Fig. E)

LOCATION: Lat. 49° 21.5′ Long. 120° 33.5′ (92H/7E)
SIMILKAMEEN M.D. At approximately 2,500 feet elevation astride the Hope-Princeton highway, one-half mile south of Whipsaw Creek.
CLAIMS: RAY 6 to 12.
ACCESS: By Highway 3 from Princeton, 9 miles.
OWNER: COPPER MOUNTAIN CONSOLIDATED LIMITED, 625, 925 West Georgia Street, Vancouver 1.
METAL: Copper.
WORK DONE: Surface geological mapping covering Ray 6 and 11; magnetometer survey, 10 line-miles covering Ray 6 and 11.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 283.

EVA, ASH, OAK (No. 253, Fig. E)

LOCATION: Lat. 49° 17.6-19.3′ Long. 120° 33.6′-35.5′ (92H/7E)
SIMILKAMEEN M.D. At approximately 4,000 feet elevation straddling the Hope-Princeton highway between Deep Gulch and Friday Creeks, 15 miles south of Princeton.
CLAIMS: EVA, ASH, OAK, totalling 29.
ACCESS: By Highway 3 from Princeton, 15 miles.
OWNER: Copper Mountain Consolidated Limited.
OPERATOR: KALCO VALLEY MINES LTD., 207, 470 Granville Street, Vancouver 2.
METAL: Copper.
WORK DONE: Trenching, 2,000 feet on Eva 3.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 385.

X, CLAIRE (No. 119, Fig. E)

LOCATION: Lat. 49° 21.3′ Long. 120° 35.5′ (92H/7E)
SIMILKAMEEN M.D. North and west of Kennedy Lake, on the south side of Whipsaw Creek.
CLAIMS: X, CLAIRE, totalling 33.
ACCESS: By Highway 3 from Princeton, 10 miles.
OWNER: Action Exploration Ltd.
OPERATOR: FALCON EXPLORATIONS LIMITED, 107, 325 Howe Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Mineralization is in Nicola volcanic rocks west of Copper Mountain intrusions.
WORK DONE: Induced polarization survey covering X and Claire claims.
REFERENCE: Assessment Report 3037.

T (No. 116, Fig. E)

LOCATION: Lat. 49° 19.5′ Long. 120° 36.5′ (92H/7E)
SIMILKAMEEN M.D. At approximately 3,800 feet elevation 2 miles southwest of Kennedy Mountain, on the southeast side of Whipsaw Creek.
CLAIMS: T 1 to 22.
ACCESS: By road from Princeton, 6 miles.
OWNER: ANCHOR MINES LTD., 807, 409 Granville Street, Vancouver 2.
METAL: Copper.
DESCRIPTION: Disseminated copper is associated with fine-grained porphyritic, volcanic, and sedimentary rocks.
WORK DONE: Magnetometer survey covering all claims; surface diamond drilling, one hole totalling 140 feet on T 3 claim.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 287; Assessment Report 3557.

GOLDROP (No. 223, Fig. E)

LOCATION: Lat. 49° 20′ Long. 120° 38′ (92H/7E)
SIMILKAMEEN M.D. At approximately 3,800 feet elevation on north side of Whipsaw Creek, 10 miles southwest of Princeton.
CLAIMS: GOLDROP 1 to 4.
ACCESS: By road from Princeton, 14 miles.
OPERATOR: SILVER TIP EXPLORATIONS LTD., Box 697, Princeton.
METALS: Silver, copper.
WORK DONE: Trenching, 1,000 feet on Goldrop 1 and 2; surface diamond drilling, two holes totalling 38 feet on Goldrop 1 and 2.

TULAMEEN (No. 178, Fig. E)

LOCATION: Lat. 49° 29′ Long. 120° 38′ (92H/7E)
SIMILKAMEEN M.D. At approximately 2,500 feet elevation in Tulameen Canyon, between Princeton and Coalmont.
CLAIMS: TULAMEEN 1 and 2, VULTURE 1 and 2, VULTURE 9 Fraction, ALBATROSS 1 and 2, MAGPIE 1 to 8, MAGPIE 9 to 12 Fractions.
ACCESS: By the Coalmont road from Princeton, 10 miles.
OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.
METALS: Copper, molybdenum.
DESCRIPTION: Weak mineralization occurs on fractures in granitic rocks and intruded Nicola volcanic rocks. Widespread pyrite mineralization is present.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet and geochemical soil and talus fines survey, 815 samples covering entire group excluding Magpie 5 to 8.
REFERENCES: Assessment Reports 3357, 3655.

SILVERTIP (No. 222, Fig. E)

LOCATION: Lat. 49° 16.5′ Long. 120° 45′ (92H/7)
SIMILKAMEEN M.D. At approximately 4,800 feet elevation near the head of Whipsaw Creek, 16 miles southwest of Princeton.
CLAIMS: SILVERTIP 1 and 2, OK 1 to 8, Mineral Lease M-30 (Lots 172 and 1549 to 1556).
ACCESS: By Highway 3 and the Whipsaw road from Princeton, 21 miles.
OPERATOR: SILVER TIP EXPLORATIONS LTD., Box 697, Princeton.
METALS: Gold, silver, copper, lead, zinc.
DESCRIPTION: Veins containing galena, sphalerite, chalcopyrite, tetrahedrite, and pyrite occur in chlorite and amphibolite schists.
WORK DONE: Stripping 3,000 square feet on OK 1; underground work, 250 feet on OK 1.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, 1969, p. 290.

WHIP, SAW, PICK (No. 173, Fig. E.)

LOCATION: Lat. 49° 17.5′ Long. 120° 45′ (92H/7)
SIMILKAMEEN M.D. At approximately 5,500 feet elevation on the north side of Whipsaw Creek, approximately 10 miles upstream from Highway 3.

CLAIMS: WHIP 1 to 8, SAW 1 to 8, PICK 1 to 6, AXE 1 to 6.

ACCESS: By road from Princeton, 21 miles.

OWNER: Texas Gulf Sulphur Company.

OPERATOR: NEWMONT MINING CORPORATION OF CANADA LIMITED, 1230, 355 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: Quartz-feldspar porphyry intrudes the Nicola volcanic rocks on the contact with the Eagle granodiorite. Pyrite-chalcopyrite-molybdenite mineralization occurs in the porphyry and in the volcanic rocks.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet covering Pick 1 to 4 and Axe 1 to 5; geochemical soil survey, 127 samples checking an existing survey; induced polarization survey, 5 line-miles covering Axe 1, 3 and Pick 1, 2, 4.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 289.

ASH (No. 58, Fig. E)

LOCATION: Lat. 49° 23′ Long. 120° 54.5′ (92H/7W)
SIMILKAMEEN M.D. On the northeast side of the Tulameen River opposite the mouth of Podunk Creek.

CLAIMS: ASH, HOL, totalling 21.

ACCESS: By Highway 3 from Princeton, 9 miles south to the Whipsaw Creek road, by the Whipsaw Creek road west to the summit of Skaist Mountain, and by a four-wheel-drive vehicle road along the top of Granite Mountain to Wells Lake. It is approximately 30 miles from Highway 3 to Wells Lake.

OWNER: Copper Range Exploration Company, Inc.

OPERATOR: THE HANNA MINING COMPANY, 1200 West Pender Street, Vancouver 1.

METALS: Molybdenum, copper.

DESCRIPTION: 'Bull-quartz' veins contain molybdenite and ferrimolybdenite in fractures and slip planes, and minor pyrite and chalcopyrite occur as disseminations in Eagle gneiss and porphyry surrounding the quartz veins.

WORK DONE: A geological report on the property and a geochemical survey on Ash 11 and 12.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 282; Assessment Report 3182.

ILE (No. 245, Fig. E)

LOCATION: Lat. 49° 22′ Long. 120° 14′ (92H/8E)
SIMILKAMEEN M.D. Between 4,200 and 4,500 feet elevation on Smith Creek, 2.5 miles upstream from Similkameen River, 15 miles southeast of Princeton.

CLAIMS: ILE 1 to 10, VENT 1 to 12.
ACCESS: By forest-access road from Highway 3, 3.2 miles.
OWNERS: C. S. LOWRY and D. SCOTT, 102, 1765 Duchess Avenue, West Vancouver.
METALS: Copper, silver.
DESCRIPTION: Geophysics and electromagnetic surveys indicate strong sheared zones, to 300 feet wide, tangential to intrusive-volcanic rock contacts. Limited outcrops show alteration with occasional fine pyrite.
WORK DONE: Induced polarization survey covering six claims.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 387; Assessment Report 3559.

JOYCE, ELAINE (No. 199, Fig. E)

LOCATION: Lat. 49° 27.8' Long. 120° 21.5' (92H/8W)
SIMILKAMEEN M.D. At elevations of 2,000 to 3,000 feet on the north side of the Similkameen River near the mouth of Hayes Creek, 5 miles east of Princeton.
CLAIMS: JOYCE, ELAINE, totalling 23.
ACCESS: Via secondary road from Princeton, 5 miles.
OWNER: ABELLA RESOURCES LTD., 534, 789 West Pender Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The claims are underlain by a granitic phase of Coast Range intrusive rock.
WORK DONE: Geological and geochemical surveys, 637 soil samples collected.
REFERENCE: Assessment Report 3395.

ILSE (No. 60, Fig. E)

LOCATION: Lat. 49° 16' Long. 120° 28' (92H/8W)
SIMILKAMEEN M.D. Three to 4 miles east of Similkameen River, due east of the mouth of Sunday Creek, 13 miles south of Princeton.
CLAIMS: ILSE 1 to 12.
ACCESS: Via the Copper Mountain road and logging roads.
OWNER: AURUS MINING LTD., 845 Hornby Street, Vancouver 1.
WORK DONE: Ground magnetometer survey covering 5.5 line-miles.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 386; Assessment Report 3088.

AZURITE (No. 13, Fig. E)

LOCATION: Lat. 49° 19.8' Long. 120° 28.7' (92H/8W)
SIMILKAMEEN M.D. Nine miles south of Princeton.
CLAIMS: CAS, BIG ELI, ASP, DEA, DES, etc., totalling 77. In part covers the expired Crown-granted claims AZURITE, COPPER GLANCE, and others.
ACCESS: Eleven miles south from Princeton via the Princeton-Copper Mountain access road.

OWNER: SINMAX MINES LTD., 510, 850 West Hastings Street, Vancouver 1.
METALS: Copper, iron.
DESCRIPTION: The property is underlain in part by the Voigt stock.
WORK DONE: Approximately 30 line-miles of geochemical and magnetomter surveys were done on the claims in 1970.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1905, p. 254; Assessment Reports 1785, 2892.

Y (No. 59, Fig. E)

LOCATION: Lat. 49° 16'-19' Long. 120° 28'-29' (92H/8W)
SIMILKAMEEN M.D. At approximately 5,000 feet elevation at the headwaters of Wolfe Creek, about 3 miles southeast of Copper Mountain mine, 11 miles south of Princeton.
CLAIMS: Y 1 to 52.
ACCESS: By road from Princeton, 14 miles.
OPERATOR: COSEKA RESOURCES LIMITED (formerly Coin Canyon Mines Ltd.), 2130, 1055 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Disseminated pyrite and pyrrhotite and trace amounts of chalcopyrite occur in silicified tuffaceous volcanic rocks.
WORK DONE: Topography and surface workings mapped; surface geological mapping, 1 inch equals 500 feet; geochemical soil survey, 28 line-miles; magnetometer survey, 16 miles; induced polarization survey, 6.7 line-miles.
REFERENCES: Assessment Reports 3187, 3188.

GE (No. 221, Fig. E)

LOCATION: Lat. 49° 28.9' Long. 120° 28.3' (92H/8W, 9W)
SIMILKAMEEN M.D. At elevations of 2,000 to 3,200 feet between Allison and Hayes Creek, from 2 to 5 miles northeast of Princeton.
CLAIMS: GE, DOT, ML, etc., totalling approximately 350.
ACCESS: By road from Princeton, 3 miles.
OWNER: Joy Mining Limited.
OPERATOR: SARACEN MINES LIMITED, 6th Floor, 55 Yonge Street, Toronto 1, Ont.
METALS: Copper, molybdenum.
DESCRIPTION: Disseminated mineralization occurs in sheared zones within the Nicola volcanic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 1,660 feet; geochemical soil survey, 84 line-miles at 100-foot spacing; geochemical stream sediment survey, 200 samples; induced polarization survey, 23 line-miles; surface diamond drilling, three holes totalling 1,500 feet; leaching plant constructed.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 388.

RONDA (No. 76, Fig. E)

LOCATION: Lat. 49° 36.8′-39.7′ Long. 119° 58.8′ - 120° 02′ (92H/9E)
OSOYOOS M.D. Approximately 3 miles south of the railway station of Thirsk on the Kettle Valley line, 15 miles west of Summerland, between elevations of 4,000 and 5,000 feet.

CLAIMS: RONDA, REX, totalling 45.

ACCESS: Via secondary road and logging road from Summerland, 21 miles.

OWNER: CAIRN MINES LTD., 411, 1200 West Pender Street, Vancouver 1.

DESCRIPTION: The claims are underlain by granodiorite and quartz monzonite of the Pennask batholith.

WORK DONE: Electromagnetic, magnetometer, and geochemical surveys.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 294; Assessment Reports 3326, 3327, 3328.

HED (No. 120, Fig. E)

LOCATION: Lat. 49° 30′-33′ Long. 119° 59′ - 120′ 03′ (92H/9E)
OSOYOOS M.D. Between 5,700 and 6,300 feet elevation at the head of Hedley Creek, 20 miles west of Penticton.

CLAIMS: HED, totalling 124.

ACCESS: By road from Summerland, 18 miles.

OWNERS: Canex Aerial Exploration Ltd. and Anaconda American Brass Limited.

OPERATOR: CANEX AERIAL EXPLORATION LTD., 800, 1030 West Georgia Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite and molybdenite occur disseminated, but in or associated with a large northwest trending structure in granodiorite.

WORK DONE: Geochemical soil survey, 1,045 samples; induced polarization survey, 4 line-miles; road construction, 5 miles (from Isintok Lake to property).

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 392; Assessment Report 3399.

AMANDA (No. 131, Fig. E)

LOCATION: Lat. 49° 44′-47.5′ Long. 120° 18′-21′ (92H/9W, 16W)
SIMILKAMEEN M.D. Between 3,600 and 4,200 feet elevation on Siwash Creek, 6 miles northwest of Bankier and 24 miles northeast of Princeton.

CLAIMS: AMANDA 1 to 24, AMIE 1 and 2, PACO 1 to 20, 101 Fraction. (The AMIE claims cover the old SNOWSTORM or RENFREW showings.)

ACCESS: By logging road from Bankier, 6 to 9 miles.

OWNER: DIANA EXPLORATIONS LTD., 402, 207 West Hastings Street, Vancouver 3.

METALS: Silver, lead, zinc, copper, gold.

DESCRIPTION: Sulphides consisting of pyrite, chalcopyrite, bornite, tetrahedrite, galena, and sphalerite occur in shear zones in granodiorite of the Otter intrusions.

WORK DONE: Line-cutting, 52 miles; geochemical soil survey, 1,251 samples covering Amanda, Amie, Paco.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1929, pp. 277, 278 (Snowstorm); *Geol. Surv., Canada,* Mem. 243, p. 108 (Renfrew).

ROK (No. 121, Fig. E)

LOCATION: Lat. 49° 34'-36' Long. 120° 25'-27.5' (92H/9W)
SIMILKAMEEN M.D. At approximately 4,000 feet elevation 3 miles north of Jura Station and 9 miles north of Princeton.

CLAIMS: ROK 1 to 68.

ACCESS: By the Osprey Lake road from Princeton, 7 miles.

OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: A zoned diorite sill, intruded by rocks of the Okanagan batholith, contains disseminated pyrite and chalcopyrite.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet; geochemical soil survey, 790 samples; ground magnetometer survey, 40 line-miles covering all claims.

REFERENCE: Assessment Report 3189.

KAT (No. 200, Fig. E)

LOCATION: Lat. 49° 38' Long. 120° 25.3' (92H/9W)
SIMILKAMEEN M.D. Between 4,700 and 5,000 feet elevation near Swanson Creek, 25 miles north of Princeton.

CLAIMS: KAT 527 to 540.

ACCESS: Via the Princeton-Merritt highway and Summers Creek road from Princeton, 25 miles.

OPERATOR: ABELLA RESOURCES LTD., 534, 789 West Pender Street, Vancouver 1.

DESCRIPTION: The claims are underlain by Coast Range granodiorite.

WORK DONE: Geological and geochemical surveys.

REFERENCE: Assessment Report 3395.

OD, OB, OC (No. 254, Fig. E)

LOCATION: Lat. 49° 44.8'-47.7' Long. 120° 26.3'-30' (92H/9W, 16W)
SIMILKAMEEN M.D. At approximately 4,500 feet elevation on Dillard Creek, east of and adjacent to south end of Missezula Lake.

CLAIMS: OD 1 to 30, OB 1 to 40, OC 1 to 40, BILL 1 to 10.

ACCESS: By road from Princeton, 20 miles.

OWNER: Primer Group Minerals Ltd.

OPERATOR: PERRY, KNOX, KAUFMAN, INC., c/o Bull, Housser & Tupper, 675 West Hastings Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: Fracture fillings and fine disseminations of copper minerals occur in fractured Nicola volcanic rocks, dioritized volcanic rocks, and diorite.

WORK DONE: Surface diamond drilling, three holes totalling 1,343 feet on OC 11, 13, 22.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 279.

ER (No. 14, Fig. E)

LOCATION: Lat. 49° 37.5′ Long. 120° 27.3′ (92H/9W)
SIMILKAMEEN M.D. At the headwaters of Trehearne Creek about 12 miles north of Princeton and 4 miles northwest of Erris.
CLAIMS: ER 1 to 8.
ACCESS: Four miles from Erris by foot. Erris is accessible by road, 12 miles northeast from Princeton.
OWNER: J. H. MONTGOMERY, 4153 West 11th Avenue, Vancouver 8.
WORK DONE: A geochemical survey was made in 1970.
REFERENCE: Assessment Report 2986.

ELN, SHR, JOY (No. 15, Fig. E)

LOCATION: Lat. 49° 35.4′-36.8′ Long. 120° 27.3′-29.3′ (92H/9W)
SIMILKAMEEN M.D. Approximately 10 miles north of Princeton, on the east side of Summers Creek.
CLAIMS: ELN 1 to 20, SHR 1 to 24, JOY 1 to 4.
ACCESS: By road 10 miles north from Princeton.
OWNER: CANWEX EXPLORATIONS LTD., 1666 West Broadway, Vancouver 9.
WORK DONE: An induced polarization survey was carried out in 1970 on ELN 1-10. In 1971 an induced polarization survey was done on ELN 1-4 and SHR 19, 21, and 27.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 280; 1970, p. 388; Assessment Reports 1833, 2300, 3016, 3017, 3283, 3607.

KOR (No. 14, Fig. E)

LOCATION: Lat. 49° 36.5′ Long. 120° 28.5′ (92H/9W)
SIMILKAMEEN M.D. At approximately 3,000 feet elevation on east side of Rampart Creek, 10 miles north of Princeton.
CLAIMS: KOR 1 to 20.
ACCESS: By the road to Jura from Princeton, 10 miles.
OWNER: Nicanex Mines Ltd.
OPERATOR: NIPPON MINING OF CANADA LTD., 607, 475 Howe Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: A contact between Nicola lavas and Coast intrusions crosses the property. Some disseminated chalcopyrite occurs in float boulders. Overburden covers most of the group.
WORK DONE: Geochemical soil survey, 18 line-miles; magnetometer survey, 18 line-miles covering all claims.
REFERENCE: Assessment Report 3364.

PIP, OK (No. 122, Fig. E)

LOCATION: Lat. 49° 37′-39′ Long. 120° 28.5′-31′ (92H/9W, 10E)
SIMILKAMEEN M.D. At approximately 3,000 feet elevation between Summers and Rampart Creeks, 12 miles north of Princeton.

CLAIMS: PIP 1 to 18, OK 19 to 32, 37 to 48.

ACCESS: By road north from Princeton, 13 miles.

OWNER: Kalco Valley Mines Ltd.

OPERATOR: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Nicola volcanic rocks are intruded by stocks of quartz diorite and granodiorite.

WORK DONE: Road construction, 1 mile on Pip claims; surface diamond drilling, two holes totalling 800 feet on Pip claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 389.

SNOW (No. 14, Fig. E)

LOCATION: Lat. 49° 37′ Long. 120° 29′ (92H/9W, 10E)
SIMILKAMEEN M.D. At approximately 3,000 feet elevation at the confluence of Rampart and Summers Creeks, 10 miles north of Princeton.

CLAIMS: SNOW 1 to 6, DIG 1 to 7, 1 to 3 Fractions, TED 1 to 4, Pat 1 to 10, 14, 15, 17, 18, KEN 4 and 5 Fractions.

ACCESS: By Highway 5 and gravel road from Princeton, 10 miles.

OPERATOR: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METALS: Copper, lead, zinc, silver.

DESCRIPTION: Sulphides occur in a shear zone in andesites and related pyroclastic rocks of the Nicola Group near the contact of a granodiorite stock. Strong argillic alteration and silicification are present in the shear zone.

WORK DONE: Surface geological mapping, 1 inch equals one-quarter mile, reconnaissance of entire group, and 1 inch equals 500 feet covering Pat 1-4, 17, 18, Snow 1-6, Ted 1-4, Dig 2 Fraction; geochemical soil surveys, reconnaissance of entire group and approximately 3 line-miles covering same claims as geological survey.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 204; Assessment Report 3396.

B (No. 62, Fig. E)

LOCATION: Lat. 49° 31.5′ Long. 120° 29.5′ (92H/9W)
SIMILKAMEEN M.D. On the east side of Allison Creek, 5 miles northeast of Princeton.

CLAIMS: B 1 to 8.

ACCESS: By secondary roads, 1 mile east from Highway 5.

OWNER: F. HOLCAPEK, c/o 201, 714 West Hastings Street, Vancouver 1.

WORK DONE: Magnetometer survey, 5.5 line-miles.

REFERENCE: Assessment Report 3010.

RABBIT, APRIL (No. 63, Fig. E)

LOCATION: Lat. 49° 39.5′ Long. 120° 29.5′ (92H/9W)
SIMILKAMEEN M.D. On and south of Rampart Lake, 15 miles north of Princeton.

CLAIMS: RABBIT 67 to 73, 75 Fraction, APRIL 73 to 86.

ACCESS: By the Summers Creek road, 8 miles north from Highway 5, thence 2 miles by trail.

OWNER: R. B. STOKES, 209, 678 Howe Street, Vancouver 1.

WORK DONE: Line-cutting and reconnaissance geological survey.

REFERENCES: Assessment Reports 2987, 3605.

AXE (No. 125, Fig. E)

LOCATION: Lat. 49° 38′-43′ Long. 120° 29.5′-33′ (92H/9W, 10E)
SIMILKAMEEN M.D. Between 3,000 and 4,500 feet elevation on west side of Summers Creek, 12 miles north of Princeton.

CLAIMS: AXE, BUD, BOL, RUM, totalling approximately 220.

ACCESS: By road from Princeton, 12 miles.

OWNER: Adonis Mines Ltd.

OPERATOR: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite occurs in Nicola volcanic rocks adjacent to and overlying weakly mineralized and fractured stocks of diorite. The area is marked by a zone of intense pyritization.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet; road construction, 2 miles; surface diamond drilling, seven holes totalling 4,500 feet on Axe claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 389.

DOT (No. 65, Fig. E)

LOCATION: Lat. 49° 32′-35.5′ Long. 120° 30′-31.5′ (92H/10E)
SIMILKAMEEN M.D. On hillside west of Summers Creek, 3 miles north of Allison Creek junction and 7 miles north of Princeton.

CLAIMS: DOT, totalling 30, and ELEPHANT 1 to 4.

ACCESS: Via Highway 5 and logging road, 7 miles from Princeton.

OWNER: ANACONDA AMERICAN BRASS LIMITED, Britannia Beach.

DESCRIPTION: The claims are underlain by Upper Triassic Nicola Group andesites and basic fragmental flows.

WORK DONE: Geochemical survey in 1970, 161 rock chip samples and 816 soil samples.

REFERENCES: *B.C. Dept of Mines & Pet. Res.,* G.E.M., 1970, p. 388; Assessment Report 3157.

MICK (No. 217, Fig. E)

LOCATION: Lat. 49° 36′-38.5′ Long. 120° 31′ (92H/10E)
SIMILKAMEEN M.D. At approximately 3,500 feet elevation on the west side of Summers Creek, 11 miles north of Princeton.

CLAIMS: MICK 9 to 14, LS 1 to 4, 7 to 14, JUNCO 1 to 3 Fractions.

ACCESS: By Highway 5 and Summers Creek road from Princeton, 10 miles.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

DESCRIPTION: Andesitic volcanic rocks of the Nicola Group are intruded by granitic rocks.

WORK DONE: Reconnaissance surface geological mapping, 1 inch equals one-quarter mile; reconnaissance geochemical soil survey, 80 samples covering all claims.

BO (No. 219, Fig. E)

LOCATION: Lat. 49° 40.5'-43.5' Long. 120° 31' (92H/10E) SIMILKAMEEN M.D. Between 3,000 and 3,500 feet elevation along Summers Creek, from 14 to 17 miles north of Princeton.

CLAIMS: BO 1 to 23, 27.

ACCESS: By Highway 5 and Summers Creek road from Princeton, 16 miles.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Andesitic rocks of the Nicola Group are intruded by small dioritic stocks. Sparse bornite-chalcopyrite mineralization occurs in discontinuous calcite veins in andesitic fragmental rocks.

WORK DONE: Reconnaissance surface geological mapping, 1 inch equals one-quarter mile; reconnaissance geochemical soil survey, 190 samples covering all claims.

RUM (No. 128, Fig. E)

LOCATION: Lat. 49° 43'-45.2' Long. 120° 31'-33' (92H/10E) SIMILKAMEEN M.D. At approximately 4,000 feet elevation 3 miles south of Missezula Lake, 20 miles north of Princeton.

CLAIMS: RUM, totalling 56.

ACCESS: By road north from Princeton, 25 miles.

OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METALS: Copper, iron.

DESCRIPTION: Chalcocite, bornite, chalcopyrite, and pyrite occur in shears and fractures in volcanic rocks, part of a complex volcanic-intrusive sequence intruded by a microdiorite stock.

WORK DONE: Surface geological mapping, 1 inch equals 500 feet; geochemical soil survey, 203 samples; magnetometer and induced polarization surveys, 20 line-miles covering Rum claims.

REFERENCE: Assessment Report 3365.

CU, RL (No. 64, Fig. E)

LOCATION: Lat. 49° 34'-35.5' Long. 120° 33.5'-36.5' (92H/10E) SIMILKAMEEN M.D. On the west side of Allison Creek, approximately 9 miles north-northwest of Princeton.

CLAIMS: CU 1 to 16, RL 33 to 44, 49 to 60.
ACCESS: Highway 5 passes along the eastern side of the property.
OWNER: NORTHAIR MINES LTD., 811, 850 West Hastings Street, Vancouver 1.
DESCRIPTION: The claims are underlain by Nicola volcanic and sedimentary rocks.
WORK DONE: Geochemical soil survey.
REFERENCE: Assessment Report 3108.

CHICO (No. 218, Fig. E)

LOCATION: Lat. 49° 37.3′ Long. 120° 34′ (92H/10E)
SIMILKAMEEN M.D. At approximately 4,000 feet elevation 1 mile southeast of Laird Lake, 11 miles north-northwest of Princeton.
CLAIMS: CHICO 2 to 8.
ACCESS: By Highway 5 and logging road from Princeton, 13 miles.
OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.
DESCRIPTION: Nicola andesites, dacites, and rhyolites are intruded by small dioritic masses.
WORK DONE: Reconnaissance surface geological mapping, 1 inch equals one-quarter mile; reconnaissance geochemical soil survey, 50 samples covering all claims.

SS (No. 220, Fig. E)

LOCATION: Lat. 49° 42.5′-44.5′ Long. 120° 34′-36′ (92H/10E)
SIMILKAMEEN M.D. At approximately 3,700 feet elevation on Allison Creek, from one-half to 3 miles northeast of Allison Lake.
CLAIMS: SS 1 to 20, 29 to 38, GREY JAY 3, 4, 6, 8, 10.
ACCESS: By Highway 5 from Princeton, 20 miles.
OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.
DESCRIPTION: A geochemical anomaly is associated with limonite staining in granitic rocks in an apparent fault contact with andesites and related tuffs of the Nicola Group.
WORK DONE: Reconnaissance surface geological mapping, 1 inch equals one-quarter mile; reconnaissance geochemical soil survey, 130 samples covering all claims.

SYM, SUN (No. 262, Fig. E)

LOCATION: Lat. 49° 37.4′-40.5′ Long. 120° 34.5′-38′ (92H/10E)
SIMILKAMEEN M.D. At appproximately 3,500 feet elevation covering Laird, Dry, and Borgeson Lakes, 13 miles northwest of Princeton.
CLAIMS: SYM 1 to 136, SUN 1 to 4.
ACCESS: By road from Princeton, 13 miles.
OPERATOR: COSEKA RESOURCES LIMITED (formerly Coin Canyon Mines Ltd.), 2130, 1055 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Minor malachite and chalcopyrite are present in the more basic phase of an intrusion and in chloritic shear zones.

WORK DONE: Topography mapped; geochemical soil and silt survey, 30 line-miles covering Sym claims; trenching, 1,400 feet on Sun 1-4.

DD (LAURA) (No. 123, Fig. E)

LOCATION: Lat. 49° 40.5'-41.5' Long. 120° 36'-40' (92H/10E)
SIMILKAMEEN M.D. Between 3,000 and 4,600 feet elevation on west side of Allison Lake, 16 miles north-northwest of Princeton.

CLAIMS: DD 37 to 76, 93 to 100.

ACCESS: By Highway 5 from Princeton, 20 miles.

OWNER: LAURA MINES LTD., 403, 717 West Pender Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: Jurassic intrusive granite is in contact with Triassic volcanic and sedimentary rocks.

WORK DONE: Topography mapped; geochemical soil survey covering all claims.

REFERENCE: Assessment Report 3494.

DD (ZENITH) (No. 123, Fig. E)

LOCATION: Lat. 49° 41.5'-43' Long. 120° 36'-40' (92H/10E)
SIMILKAMEEN M.D. Between 3,000 and 4,600 feet elevation on west side of Allison Lake, 17.5 miles north-northwest of Princeton.

CLAIMS: DD 1 to 36, 77 to 92.

ACCESS: By Highway 5 from Princeton, 30 miles.

OWNER: ZENITH MINING CORPORATION LTD., 403, 717 West Pender Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: Jurassic intrusive granite is in contact with Triassic volcanic and sedimentary rocks.

WORK DONE: Geochemical soil survey covering all claims.

REFERENCE: Assessment Report 3495.

COUSIN JACK (No. 202, Fig. E)

LOCATION: Lat. 49° 36.4' Long. 120° 47.8' (92H/10W)
SIMILKAMEEN M.D. On a tributary of Elliot Creek, 1 mile northwest of Otter Lake and 5 miles northwest of Tulameen.

CLAIMS: COUSIN JACK, YMIR, MORNING, OSHKOSH, WINNIBEGO, BLACK BIRD, BERLIN Fraction, FREDDIE BURN (Lots 263 to 270 respectively), ANACONDA, CONSTITUTION, INTERNATIONAL (Lots 373, 282, 283), and JM, IT, HOPE, PIT, etc., totalling 43.

ACCESS: By secondary road from Tulameen, 5 miles.

OWNER: GOLD RIVER MINES LTD., 210, 660 Howe Street, Vancouver 1.

METALS: Copper, lead, zinc, gold, silver.

WORK DONE: Soil sampling and line-cutting, 16.25 miles and 800 samples.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 177; Assessment Reports 3397, 3398.

COLDWATER (No. 126, Fig. E)

LOCATION: Lat. 49° 41.4' Long. 121° 01.4' (92H/11E)
NICOLA M.D. Between 3,400 and 4,500 feet elevation on Coldwater River, 3.5 miles north of Coquihalla Lakes.
CLAIMS: RIP, HDD, HOPE, LUCKY, RANDY, etc., totalling 118 (formerly COLDWATER, KEYSTONE, HOPE).
ACCESS: By road on old Canadian Pacific Railway right-of-way from Hope or Merritt, 33 or 40 miles.
OPERATOR: CORVAL RESOURCES LTD., 101, 325 Howe Street, Vancouver 1.
METALS: Zinc, silver, lead, copper, minor gold and cadmium.
DESCRIPTION: A series of quartz veins with high-grade lead, zinc, silver and a deposit of scattered zinc and lead occur in fractures in silicified limestone and rhyolite near a granodiorite contact.
WORK DONE: Surface geological mapping and geochemical survey, 11.3 line-miles covering all claims.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1966, p. 171 (Hope); Assessment Reports 3123 (line-cutting), 3595.

AL (No. 288, Fig. E)

LOCATION: Lat. 49° 33.5' Long. 121° 42.6' (92H/12E)
NEW WESTMINSTER M.D. On Cogburn Creek, 4 miles east of Harrison Lake.
CLAIMS: AL 1 to 6.
ACCESS: By road from Harrison Hot Springs, 29 miles.
OPERATOR: WESTERN STANDARD SILVER MINES LTD., Box 462, Kelowna.
METALS: Copper, nickel.
WORK DONE: Preliminary surface geological mapping and soil sampling covering Al 1-6.
REFERENCE: Assessment Report 3580.

HI (No. 106, Fig. E)

LOCATION: Lat. 49° 29.5'-33.5' Long. 121° 59' - 122° 03' (92H/12W)
Report on this property in section 92G/8E, 9E.

OLE (No. 66, Fig. E)

LOCATION: Lat. 49° 51.7' Long. 121° 25.8' (92H/14W)
NEW WESTMINSTER M.D. Immediately east of Boston Bar, on the Fraser River.
CLAIMS: OLE 1 to 15, SISU 1 to 14.

ACCESS: Via logging roads from Highway 1, about three-eighth of a mile.

OPERATOR: G.M. EXPLORATIONS LIMITED, 1131 Melville Street, Vancouver 5.

METALS: Nickel, copper.

DESCRIPTION: Chalcopyrite and pyrrhotite-pentlandite mineralization, exposed in trenches and drill core on Ole 1 claim, occurs in peridotite which intrudes Ladner slate.

WORK DONE: Surface workings mapped; surface geological mapping, 1 inch equals 200 feet on Ole 1-15 and 1 inch equals 300 feet on Sisu 1-14; geochemical soil survey covering Ole and Sisu claims; magnetometer survey covering Ole and Sisu claims; electromagnetic survey covering Ole claims; road construction, one-quarter mile in Ole 1 area; trenching, 100 feet on Ole 2; stripping, 800 square yards on Ole 1; surface diamond drilling, four holes totalling 86 feet under main showing on Ole 1.

REFERENCES: Assessment Reports 3190 and 3191.

STRIKE (No. 68, Fig. E)

LOCATION: Lat. 49° 47′ Long. 120° 33′ (92H/15E)
NICOLA M.D. One mile west of Missezula Lake, 23 miles north of Princeton.

CLAIMS: STRIKE, LORNA, NUR, SPIKE, totalling 21.

ACCESS: Thirty miles north from Princeton on Highway 5, thence 7 miles east and south on an old truck road.

OWNER: Adera Mining Limited.

OPERATOR: PLATEAU METALS LIMITED, 207, 470 Granville Street, Vancouver 2.

WORK DONE: Geochemical survey, approximately 630 samples.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1966, pp. 169, 170; Assessment Report 3107.

BROATCH (No. 251, Fig. E)

LOCATION: Lat. 49° 55.4′-56.7′ Long. 120° 34′ (92H/15E)
NICOLA M.D. At approximately 2,000 feet elevation 6 miles northeast of Aspen Grove.

CLAIMS: HALO, BROATCH, RAM, LOU, TOP, CHALCO, MAGNUS, TOUCH, SNOW, VIN, totalling 56.

ACCESS: By road from Aspen Grove, 6 miles.

OWNERS: Frontier Exploration Limited and David Minerals Ltd.

OPERATOR: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Mineralization occurs at the contact between granite and microdiorite with Nicola pyroclastic rocks.

WORK DONE: Claims mapped; surface geological mapping, 1 inch equals 400 feet; reconnaissance airphoto mapping; geochemical soil survey, 235 samples covering all claims.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 202 (Halo); Assessment Report 3512.

DOR (No. 69, Fig. E)

LOCATION: Lat. 49° 59.7′ - 50° 01.4′ Long. 120° 34.6′-37′ (92H/15E)
NICOLA M.D. Surrounding Courtenay Lake on Highway 5, 11 miles southeast of Merritt.
CLAIMS: DOR 1 to 34.
ACCESS: By Highway 5.
OWNER: TANJO MINES LTD., 12503 Grandview Drive, Edmonton, Alta.
WORK DONE: Magnetometer survey, approximately 17 line-miles.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 378; Assessment Report 3061.

TAB (No. 127, Fig. E)

LOCATION: Lat. 49° 58.3′ Long. 120° 35.7′ (92H/15E)
NICOLA M.D. At approximately 4,000 feet elevation 1 mile east of Highway 5, 2 miles north of Aspen Grove.
CLAIMS: TAB 1 to 5.
ACCESS: By foot from Highway 5, 1.5 miles.
OWNER: NORRANCO MINING & REFINING CO. LTD., 500, 736 Eighth Avenue SW., Calgary 2, Alta.
METAL: Copper.
WORK DONE: Magnetometer survey covering Tab 1-5.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 276 (Bat, Tab); Assessment Reports 250, 3115.

BLUE JAY (No. 216, Fig. E)

LOCATION: Lat. 49° 59′ Long. 120° 36′ (92H/15E)
NICOLA M.D. On Highway 5, approximately 6 miles north of Aspen Grove.
CLAIMS: BLUE JAY 1 to 24, 1 to 5 Fractions, LEE 1 to 14, PMB 1 to 5.
ACCESS: By road from Merritt, approximately 17 miles.
OPERATOR: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, 555 Burrard Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Low-grade disseminated chalcopyrite is present in fine-grained Nicola rocks. Minor sporadic silicification and biotitization have been mapped.
WORK DONE: Topography mapped; magnetometer survey, approximately 40 line-miles covering Blue Jay 1-24, Blue Jay 1-5 Fractions, and Lee 1-14.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 202; Assessment Reports 1842, 3555.

DOTE (No. 16, Fig. E)

LOCATION: Lat. 49° 56.6' Long. 120° 36.3' (92H/15E)
NICOLA M.D. At Aspen Grove straddling Highway 5 approximately 1 mile north of Kidd Lake, about 16 miles south of Merritt.
CLAIMS: DOTE, totalling 36.
ACCESS: By Highway 5 and logging road that leaves the highway about 1 mile north of Aspen Grove.
OWNER: DAWOOD MINES LIMITED, Box 1499, Merritt.
METALS: Copper, molybdenum.
DESCRIPTION: Two types of mineralization occur: chalcocite-bornite associated with intersecting fracture zones in basalt, and pyrite-chalcopyrite disseminated in andesite tuff.
WORK DONE: Geological survey of Dote 1-8 and 11-18.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 379; Assessment Reports 1910, 2468, 3051.

AXE (No. 67, Fig. E)

LOCATION: Lat. 49° 46.2'-47.8' Long. 120° 36.5'-39.5' (92H/15E)
NICOLA M.D. Astride Highway 5, 10 miles south of Aspen Grove.
CLAIMS: AXE, JOY, BOSS, VENT, PAC, WAL, BIM, TIGHT, ZIP, totalling 349.
ACCESS: By Highway 5 and logging road.
OWNER: ADONIS MINES LTD., 117 East 8th Avenue, New Westminster.
METALS: Copper, molybdenum.
DESCRIPTION: The claims are underlain by andesite, rhyolite, argillite, tuffs, and limestone of the Nicola Group intruded by granodiorite. Fracturing is extensive. Chalcocite, bornite, chalcopyrite, and molybdenite are widespread.
WORK DONE: Induced polarization survey covering 32 Axe claims and 4 Vent claims; magnetic survey covering 31 Axe claims and 4 Vent claims; electromagnetic survey covering same claims as magnetic survey; road construction, approximately 6,000 feet; trenching, approximately 2,500 feet and stripping, approximately 3,500 feet on Boss 49, 53, 117, 119, 134 and Wal 91, 92 claims; surface diamond drilling, two holes totalling 501 feet on Vent 21 and Boss 133.
REFERENCES: Assessment Reports 3137, 3138, 3144.

POGO (No. 179, Fig. E)

LOCATION: Lat. 49° 59.7' Long. 120° 41' (92H/15E)
NICOLA M.D. Near Kane and Harmon Lakes, 12 miles east-southeast of Merritt.
CLAIMS: POGO 1 to 22.
ACCESS: By the Merritt-Princeton highway and the Kane Valley road.
OWNER: THOR EXPLORATIONS LTD., 301, 540 Burrard Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Area underlain by Nicola volcanic and Princeton sedimentary rocks.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 185 samples covering Pogo 19-22; magnetometer survey, 3 line-miles covering Pogo 15-20.

REFERENCE: Assessment Report 3284.

GEO (No. 129, Fig. E)

LOCATION: Lat. 49° 58.6' - 50° 01' Long. 120° 48.5'-51.6' (92H/15W)
NICOLA M.D. Between 3,000 and 5,000 feet elevation on the north slope of Selish Mountain, 8 miles south-southwest of Merritt.

CLAIMS: GEO, totalling 56 (formerly BRUCE, PICK, and, in part, SELISH).

ACCESS: By road from Merritt, 15 to 25 miles.

OWNER: CRAIGMONT MINES LIMITED, Box 3000, Merritt.

METAL: Copper.

WORK DONE: Surface geological mapping, 1 inch equals one-half mile; magnetometer survey, 25 line-miles covering all claims.

REFERENCES: Assessment Reports 802 (Bruce, Pick), 3018.

BRENDA MINE (No. 201, Fig. E)

By David Smith

LOCATION: Lat. 49° 52.8' Long. 120° 00.5' (92H/16E)
OSOYOOS M.D. One and one-half miles southeast of Brenda Lake.

CLAIMS: Mineral Leases M-58, M-59, M-77, M-78, M-79, M-82, M-83, plus 238 mineral claims and fractions. The open pit lies primarily within Mineral Lease M-58.

ACCESS: Access to the property is provided by 4 miles of paved road and 14 miles of gravel road from Peachland.

OWNER: BRENDA MINES LTD., Box 420, Peachland.

METALS: Copper, molybdenum (production shown in Table 1).

WORK DONE:

In 1971, the mill has worked to capacity of 24,000 tons per day throughout the year. Copper concentrates are trucked to Kelowna and transferred to railway cars.

During 1971, 18,110,900 tons of material was removed from the pit, consisting of 8,806,500 tons of mill feed; 2,339,100 tons of low-grade stockpile; 6,814,700 tons of waste; and 96,600 tons of overburden.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, 1G.E.M., 1970, p. 391.

NORTH BRENDA (No. 273, Fig. E)

LOCATION: Lat. 49° 53.6'-56.6' Long. 119° 57.9' - 120° 01.7' (92H/16E)
OSOYOOS M.D. At approximately 5,500 feet elevation near the head of Trepanier Creek, 15 miles northwest of Peachland.

CLAIMS: TEE 1 to 16, LITE 1 to 8, BERN 9, 10, 21, 22, 33, 45, JEFF 1 to 48, GUN 1 to 6, ANN 7 to 22, BOB 17 to 28, MOB 1 to 8, COULEE 4, 6, 11, 13.

ACCESS: By road from Peachland, 30 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite, molybdenite, and pyrite occur in fractured granodiorite. There is some biotite and propylitic alteration.

WORK DONE: Percussion drilling, 12 holes totalling 2,550 feet.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 215; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 391 (Tee, Lite, Bern).

TC (No. 130, Fig. E)

LOCATION: Lat. 49° 44.3'-47.5' Long. 120° 06'-12.5' (92H/16E)
SIMILKAMEEN M.D. At approximately 5,000 feet elevation on Spring and Trout Creeks, 15 miles south of Pennask Lake.

CLAIMS: TC 1 to 152.

ACCESS: By road from Peachland, 28 miles.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 1,000 feet; geochemical soil and stream survey, 1,039 samples covering all claims.

REFERENCE: Assessment Report 3643.

PINE, SNOW (No. 133, Fig. E)

LOCATION: Lat. 49° 57' - 50° 00.5' Long. 120° 17'-20' (92H/16W)
NICOLA M.D. At approximately 4,000 feet elevation at the junction of the Paradise Lake and Pennask Lake roads, 15 miles southeast of Quilchena.

CLAIMS: Twenty-two PINE, 49 SNOW, 30 PARSNO, 16 LINE, 2 LINK Fractions, 6 RON Fractions.

ACCESS: By road from Quilchena, 28 miles.

OWNER: DeKALB MINING CORPORATION, 635 Sixth Avenue SW., Calgary 1, Alta.

DESCRIPTION: Exploration was directed to evaluating induced polarization and geochemical anomalies mapped during the 1970 field season. The area is underlain with granite that has been fractured. Copper mineralization has been noted along fractures and to a lesser extent disseminated in the granite.

WORK DONE: Claims and topography mapped; surface geological mapping, 1 inch equals 400 feet covering all claims; induced polarization survey, 15 line-miles covering Snow and Pine claims; geochemical soil survey, 1,000 samples covering Line, Link, Pine, and Snow claims; road construction, 3 miles (to drill sites); surface diamond drilling, 10 holes totalling 5,000 feet on Pine and Snow claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 380; Assessment Reports 2441, 2984, 3415.

WM (No. 132, Fig. E)

LOCATION: Lat. 49° 51′-54.5′ Long. 120° 25.5′-28′ (92H/16W)
NICOLA M.D. At approximately 4,500 feet elevation on Shrimpton and Pothole Creeks, 9 miles east-southeast of Aspen Grove.
CLAIMS: WM 1 to 111.
ACCESS: By road southeast from Aspen Grove, 15 miles.
OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.
WORK DONE: Topography mapped; geochemical soil survey, 669 samples; electromagnetic survey, 32 line-miles covering all claims.
REFERENCE: Assessment Report 3556.

ASHCROFT 92I

CW (No. 134, Fig. E)

LOCATION: Lat. 50° 03.5′-08′ Long. 120° 25′-30′ (92I/1W)
NICOLA M.D. Between 3,000 and 4,000 feet elevation, 3 to 6 miles southeast of Quilchena.
CLAIMS: One hundred and twenty-nine CW, WC 1 to 7 Fractions, FOX 1 to 25.
ACCESS: By road from Merritt, 15 to 30 miles.
OPERATOR: CRAIGMONT MINES LIMITED, Box 3000, Merritt.
METAL: Copper.
DESCRIPTION: Minor disseminated chalcopyrite occurs in Nicola Group rocks and Jurassic-Cretaceous dioritic intrusions.
WORK DONE: Surface geological mapping, 1 inch equals one-half mile; magnetometer survey, 50 line-miles; and induced polarization survey, 5 line-miles covering CW and Fox claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 377.

BUD (No. 17, Fig. E)

LOCATION: Lat. 50° 01.5′-03.5′ Long. 120° 33.5′-36′ (92I/2E)
NICOLA M.D. Two miles north of Courtney Lake near Aspen Grove and approximately 2 miles east of Highway 5.
CLAIMS: BUD 1 to 35.
ACCESS: By Highway 5, 10 miles southeast from Merritt.
OWNER: Paul Barrett.
OPERATOR: L. OLHEISER, 128, 696 West 45th Avenue, Vancouver 13.
WORK DONE: Approximately 18 line-miles of electromagnetic and geochemical surveys was done on BUD 5-20 claims in 1970. A total of 103 soil samples was collected for analysis.
REFERENCE: Assessment Report 2881.

DOR (No. 69, Fig. E)

LOCATION: Lat. 49° 59.7′ - 50° 01.4′ Long. 120° 34.6′-37′ (92I/2E)
Report on this property in section 92H/15E.

NIK (No. 18, Fig. E)

LOCATION: Lat. 50° 10.6' Long. 120° 36.5' (92I/2E)
NICOLA M.D. Nine miles northeast of Merritt on the north shore of Nicola Lake.

CLAIMS: NIK 1 to 12.

ACCESS: By gravel road from Nicola.

OWNER: G. F. CRESSY, Jr., Box 406, Merritt.

METAL: Copper.

WORK DONE: Magnetometer and electromagnetic surveys were done in 1970 on Nik 5-12.

REFERENCE: Assessment Report 3143.

SB (No. 182, Fig. E)

LOCATION: Lat. 50° 10.2' Long. 120° 48.7' (92I/2W)
NICOLA M.D. Three and one-half miles north-northwest of Merritt, near Jesse Creek.

CLAIMS: SB 1, 2, 5, 6.

ACCESS: By Highway 8 and secondary road from Merritt.

OWNER: COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.

WORK DONE: Geochemical soil survey.

REFERENCE: Assessment Report 3285.

MAKELSTIN (No. 19, Fig. E)

LOCATION: Lat. 50° 02.7' Long. 120° 45.7' (92I/2)
NICOLA M.D. At 5,500 feet elevation on Iron Mountain, 5 miles southeast of Merritt.

CLAIMS: MAKELSTIN, totalling 58 (previously LUCKY TODD, LEADVILLE, and COMSTOCK).

ACCESS: By Coldwater road and microwave tower road from Merritt, 14 miles.

OWNER: ACAPLOMO MINING & DEVELOPMENT CO. LTD., Box 277, Merritt.

METALS: Lead, copper, silver.

DESCRIPTION: A galena-barite vein occurs in a strong north-south shear zone. Bedrock is volcanic rock including tuff, andesite, and rhyolite. Disseminated copper showings are in andesite and rhyolite. Silver anomalies are associated with east-west structural feature deduced from magnetic results.

WORK DONE: Magnetometer survey, 11.5 line-miles and electromagnetic survey, 14.99 line-miles covering Makelstin 3, 4, 21A, 22A, 31, 33, 37, 38, 50, 56B, 59-62; road construction, 0.2 mile on Makelstin 61.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1951, p. 128 (Lucky Todd); *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 376; Assessment Reports 2967, 3192, 3455, 3456.

GEO (No. 129, Fig. E)

LOCATION: Lat. 49° 58.6' - 50° 01' Long. 120° 48.5'-51.6' (92I/2W)
Report on this property in section 92H/15W.

CRAIGMONT MINE (No. 236, Fig. E)

By David Smith

LOCATION: Lat. 50° 12.5' Long. 120° 55.7' (92I/2W)
NICOLA M.D. Between 3,800 and 4,200 feet elevation at the forks of Birkett Creek, 8 miles north of Merritt.

CLAIMS: The Craigmont orebodies are on the MERRELL 7 and 8 and McLEOD 5 and 6 claims. The company holds 106 mineral claims and fractions, 32 of which comprise 10 mineral leases.

ACCESS: By road north from Highway 8 and Lower Nicola.

OWNER: CRAIGMONT MINES LIMITED, 700, 1030 West Georgia Street, Vancouver 5; mine address, Box 3000, Merritt.

METALS: Copper, iron (production shown in Table 1).

WORK DONE:

Mining and milling operations were continuous in 1971. Copper concentrates are loaded at Coyle Siding and hauled by Canadian Pacific Railway to Vancouver for shipment to Japan. Shipments of magnetite were made to the Kaiser coal operation at Natal.

Underground work consisted of lateral development, 24,000 feet; raising, 1,000 feet.

The modifications to the ventilation system started in 1970 have been completed and a marked improvement in the environmental conditions underground has been realized.

In 1971 it was necessary to re-locate the No. 1 shaft hoistroom and the 3432 heavy duty shops.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 373.

B&B (No. 21, Fig. E)

LOCATION: Lat. 50° 20.7' Long. 121° 35.9' (92I/5E)
KAMLOOPS M.D. Eight miles north of Lytton on the south slope of Botanie Mountain.

CLAIMS: B&B 1 to 76.

ACCESS: By a fire tower road off the Botanie Creek road.

OWNER: CANADIAN JOHNS-MANVILLE COMPANY LIMITED, Box 1500, Asbestos, P.Q.

METAL: Copper.

DESCRIPTION: Malachite and chalcopyrite occur in quartz veins and with pyrite along fractures and small faults in granodiorite and metamorphic rocks.

WORK DONE: A geochemical survey was done in 1970; 112 soil and 69 talus fines samples were collected for analysis.

REFERENCES: Assessment Reports 2261, 3194.

COP (No. 20, Fig. E)

LOCATION: Lat. 50° 25.7' Long. 121° 36.4' (92I/5E)
KAMLOOPS M.D. On the east side of Izman Creek, approximately 15 miles north of Lytton and 4 miles east of the Fraser River.

CLAIMS: COP, ALPINE, BONNY, NIP, PAM, CB, CREST, SPOT, BAY, KEN, totalling 90.

ACCESS: By Highway 12 and secondary road along the south and east side of Izman Creek.

OWNER: SANTANA INTERNATIONAL RESOURCES LTD., 222, 510 West Hastings Street, Vancouver 2.

METALS: Copper, molybdenum.

DESCRIPTION: Sulphides occur as disseminations and in quartz veins in quartz diorite.

WORK DONE: Line-cutting in 1970; trenching, 3,600 feet on Nip, CB, Spot, Pam, and Crest claims in 1971.

REFERENCE: Assessment Report 2985.

DIANA (No. 175, Fig. E)

LOCATION: Lat. 50° 26.5'-29' Long. 121° 40'-42' (92I/5E)
KAMLOOPS M.D. Between 1,200 and 4,000 feet elevation straddling Laluwissen Creek, on the east side of the Lytton-Lillooet highway, 17 miles north of Lytton.

CLAIMS: DIANA 1 to 47, JUDY 1 to 11.

ACCESS: By Highway 12 from Lytton, 17 miles.

OWNER: CUDA RESOURCES LTD., 711, 475 Howe Street, Vancouver 1.

METALS: Copper, gold, silver.

DESCRIPTION: Coast intrusive rocks cut Cache Creek rocks.

WORK DONE: Geochemical soil survey, 36 line-miles and magnetometer survey, 25 line-miles covering Diana 1-7, 9-15, 17, 19, 23, 27, 29, 39-45 and Judy 5 and 6; trenching, 200 square feet on Diana 1 and 3.

REFERENCE: Assessment Report 3154.

BOD (No. 135, Fig. E)

LOCATION: Lat. 50° 15'-18' Long. 121° 25'-31' (92I/5E, 6W)
KAMLOOPS M.D. At approximately 2,500 feet elevation on the north side of the Thompson River, 4 to 8 miles east of Lytton.

CLAIMS: BOD 1 to 98, 111 to 158, 200, 1 to 14 Fractions; RAINBOW 1 to 8 Fractions.

ACCESS: By bulldozer road from Pitquah Siding on the Canadian National Railway, 2 miles.

OWNER: Kalco Valley Mines Ltd.

OPERATOR: PHELPS DODGE CORPORATION OF CANADA, LIMITED, 404, 1112 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Chalcopyrite is associated with epidote alteration in gabbroic and dioritic rocks. Massive chalcocite occurs in several narrow veins on the upper parts of the claims.

WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering all claims; trenching, 40,000 feet on Bod 1-98 and 111-158.

REFERENCE: Assessment Report 3529.

AB (No. 247, Fig. E)

LOCATION: Lat. 50° 29′ Long. 121° 20′ (92I/6W)
KAMLOOPS M.D. At approximately 4,000 feet elevation adjoining east side of Indian Reserve 6 on east side of Twaal Creek, 4 miles north of Spences Bridge.
CLAIMS: AB 18 to 25.
ACCESS: By road from Spences Bridge, 7 miles.
OWNER: ANGLO-BOMARC MINES LTD., 301, 540 Burrard Street, Vancouver 1.
METAL: Copper.
WORK DONE: Surface geological mapping, 1 inch equals 100 feet and geochemical soil survey, 30 samples covering AB 20 and 24.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 327.

XH (No. 51, Fig. E)

LOCATION: Lat. 50° 18.3′-20.0′ Long. 120° 31.8′-35.3′ (92I/7E)
NICOLA M.D. The property is centred 3 miles north of Conant Lake and 4 miles east of Helmer Lake.
CLAIMS: XH 1 to 80.
ACCESS: By secondary road along the northwest side of Nicola Lake to the British Columbia Hydro line and by jeep road north along the line.
OWNER: RICHROCK MINES LTD., 625, 925 West Georgia Street, Vancouver 1.
WORK DONE: Approximately 40 line-miles of magnetometer surveying.
REFERENCES: Assessment Reports 2968, 2969.

LAST CHANCE (LUCKY MIKE) (No. 275, Fig. E)

LOCATION: Lat. 50° 18′ Long. 120° 41.5′ (92I/7E)
NICOLA M.D. At approximately 4,000 feet elevation on Swakum Mountain, 10 miles northeast of Merritt.
CLAIMS: LO 1 to 12.
ACCESS: By road from Merritt, 10 miles.
OWNER: CYCLONE MINING CO. LTD., 505 Burrard Street, Vancouver 1.
METALS: Copper, tungsten.
DESCRIPTION: Replacement mineralization occurs in limestone and granite.
WORK DONE: Surface diamond drilling, two holes totalling 60 feet on LO 2 and 4.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1959, p. 36; *Geol. Surv., Canada*, Mem. 249, pp. 59, 137; Assessment Report 136.

JHC (No. 136, Fig. E)

LOCATION: Lat. 50° 27′ Long. 120° 41.5′ (92I/7E)
KAMLOOPS M.D. Between 4,200 and 4,500 feet elevation surrounding Homfray Lake, 24 miles north of Merritt.
CLAIMS: JHC, BC, CB, totalling 53.
ACCESS: By road southeast from the Meadow Creek-Guichon Creek junction, 8 to 10 miles.

OPERATOR: CRAIGMONT MINES LIMITED, Box 3000, Merritt.
METAL: Copper.
DESCRIPTION: Disseminated chalcocite occurs in porphyritic to amygdaloidal basalt.
WORK DONE: Surface geological mapping, 1 inch equals 200 feet and geochemical soil survey, 200 samples covering JHC 7-10 and 12; magnetometer survey, 3 line-miles and induced polarization survey, 3 line-miles covering JHC 9 and 10; surface diamond drilling, two holes totalling 800 feet on JHC 9 and 10.

BOO (No. 277, Fig. E)

LOCATION: Lat. 50° 21′ Long. 120° 25′ (92I/8W)
NICOLA M.D. At approximately 3,000 feet elevation on the southwest shore of Stump Lake, 30 miles northeast of Merritt.
CLAIMS: BOO 1 to 24.
ACCESS: By Highway 5 from Merritt, 30 miles.
OWNER: MAIKO RESOURCES LTD., Box 519, North Vancouver.
METALS: Copper, nickel.
WORK DONE: Reconnaissance geology on the claims.

KENCO (No. 25, Fig. E)

LOCATION: Lat. 50° 37.2′ Long. 120° 19.2′ (92I/9W)
KAMLOOPS M.D. Astride Highway 5, 3 miles south of Kamloops.
CLAIMS: KENCO 25 to 32, 34, 35, 38, 39.
ACCESS: By Highway 5, 3 miles south from Kamloops.
OWNER: NORTH BAY MINES & OILS LTD., 414, 198 West Hastings Street, Vancouver 3.
WORK DONE: Magnetometer survey, 6 line-miles; geochemical soil survey, 113 samples.
REFERENCE: Assessment Report 2946.

IM (No. 137, Fig. E)

LOCATION: Lat. 50° 36.5′ Long. 120° 20.5′ (92I/9W)
KAMLOOPS M.D. Immediately south of Knutsford.
CLAIMS: IM, totalling 74; Mineral Lease M-35, DISPATCHER (Lot 1748); Mineral Lease M-36, HAWTHORNE (Lot 834).
ACCESS: By road west from Highway 5, 3 miles.
OWNER: Royal Canadian Ventures Ltd.
OPERATOR: GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD., 736 Eighth Avenue SW., Calgary 2, Alta.
METAL: Copper.
WORK DONE: Percussion drilling, 11 holes totalling 2,330 feet on IM 19, 28, 31, 32, and 69.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 320; Assessment Reports 1748, 2160.

KN (No. 22, Fig. E)

LOCATION: Lat. 50° 37.2′ Long. 120° 20.6′ (92I/9W)
KAMLOOPS M.D. Immediately west of the village of Knutsford, about 3 miles south of Kamloops on Highway 5.
CLAIMS: KN 1, KN 2 and 3 Fractions.
ACCESS: By Highway 5.
OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.
METAL: Copper.
WORK DONE: Electromagnetic and magnetometer surveys were completed over 4 miles of grid.
REFERENCE: Assessment Report 2860.

KENCO (No. 24, Fig. E)

LOCATION: Lat. 50° 40.6′ Long. 120° 24.0′ (92I/9W)
KAMLOOPS M.D. Three miles west of Kamloops and 1 mile south of the Thompson River.
CLAIMS: KENCO 1 to 22.
ACCESS: By Highway 1, 3 miles west from Kamloops.
OWNER: NORTH BAY MINES & OILS LTD., 414, 198 West Hastings Street, Vancouver 3.
WORK DONE: Magnetometer survey, 8.5 line-miles; geochemical soil survey, 80 samples; some trenching.
REFERENCE: Assessment Report 2945.

EVENING STAR, GOLDEN STAR (No. 281, Fig. E)

LOCATION: Lat. 50° 38.5′ Long. 120° 25.4′ (92I/9W)
KAMLOOPS M.D. At approximately 2,000 feet elevation on Ironmask Hill, 5 miles southwest of Kamloops.
CLAIMS: Fifty-two including EVENING STAR (Lot 1013) and GOLDEN STAR (Lot 845).
ACCESS: From Lac Le Jeune road, 1 mile.
OWNERS: Nor-West Kim Resources Ltd. and Pan Ocean Oil Ltd.
OPERATOR: NOR-WEST KIM RESOURCES LTD. (formerly Kimberley Copper Mines Ltd.), 720, One Bentall Centre, Vancouver 1.
METALS: Copper, molybdenum, gold, silver.
WORK DONE: Underground workings surveyed; underground geological mapping, 1 inch equals 400 feet; drifting, 1,316 feet; surface diamond drilling, 4,374 feet; underground diamond drilling, 1,074 feet, all on Evening Star.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 235.

ZZ (No. 23, Fig. E)

LOCATION: Lat. 50° 40.0′-41.5′ Long. 120° 29.0′-30.0′ (92I/9W)
KAMLOOPS M.D. North side of Highway 1, 7 miles west of Kamloops.

CLAIMS: ZZ 9 to 12, 21 to 24, 33 to 36, 45 to 48, 56 to 59, LAST 1 to 10.
ACCESS: By Highway 1 which passes along the southern boundary of the claims.
OWNER: ENSBROOK MINES LTD., 24, 448 Seymour Street, Vancouver 2.
DESCRIPTION: The area is underlain by Kamloops volcanic rocks of Tertiary age.
WORK DONE: During 1969-1970 geochemical and magnetometer surveys were made over the claims.
REFERENCES: Assessment Report 2323B, 2866.

AFTON, POTHOOK (No. 138, Fig. E)

LOCATION: Lat. 50° 39.5' Long. 120° 30.5' (92I/9W, 10E) KAMLOOPS M.D. At approximately 2,500 feet elevation 15 miles west of Kamloops.
CLAIMS: AFTON 1 to 7, AFTON Fraction, ADD 1 to 30, POT 5 to 9, 11 to 14, POT 1 to 4 and 10 Fractions, DOMINION (Lot 1595).
ACCESS: By Trans-Canada Highway from Kamloops, about 15 miles.
OWNER: Afton Mines Ltd.
OPERATORS: AFTON MINES LTD. , Box 4183, Vancouver 9 and QUINTANA MINERALS CORPORATION, 1215, Two Bentall Centre, Vancouver 1.
METALS: Copper; minor gold, silver, molybdenum.
DESCRIPTION: Copper occurs as native copper and in chalcopyrite and malachite with chlorite, sericite, and K-feldspar alteration in the Iron Mask batholith and Nicola volcanic rocks.
WORK DONE: Afton Mines Ltd.: trenching, 300 feet; stripping, 5,000 feet; surface diamond drilling, two holes totalling 1,600 feet; percussion drilling, 34 holes totalling 10,150 feet, all on Dominion (Lot 1595). Quintana Minerals Corporation: surface geological mapping, 1 inch equals 1,000 feet; percussion drilling, 21 holes totalling 5,100 feet.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 322.

TC, SPUR (No. 215, Fig. E)

LOCATION: Lat. 50° 35.0' Long. 120° 39.5' (92I/10E) KAMLOOPS M.D. Between 5,000 and 5,400 feet elevation 2 miles southwest of Greenstone Mountain, 16 miles west-southwest of Kamloops.
CLAIMS: TC 5 to 16, 25 to 36, SPUR 1 to 10, BRUCE 59 to 70, JC 1 to 8, LA 1 to 4, E, F, G, H, I, L, O, and Q Fractions.
ACCESS: By gravel road from Cherry Creek, approximately 16 miles.
OWNERS: Dominic Lake Mining Company Ltd. and Tro-Buttle Exploration Limited.
OPERATOR: TRO-BUTTLE EXPLORATION LIMITED, 848 West Hastings Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Scattered showings of disseminated chalcopyrite and molybdenum occur in the granitic Roper Lake stock and the dioritic Dairy Lakes stock and in contact areas of the volcanic host rock of the Nicola Group.

WORK DONE: Geochemical soil survey, 5 line-miles covering Spur 1, 3, 5, 7, and 9, LA 2 and 4, Bruce 64, and E and G Fractions.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 238; Assessment Report 3458.

BOB (No. 26, Fig. E)

LOCATION: Lat. 50° 34′ Long. 121° 20′ (92I/11W)
KAMLOOPS M.D. On the east side of Venables Lake, 11 miles south-southwest of Ashcroft.
CLAIMS: BOB 1 to 22.
ACCESS: Three miles from Highway 1 via the Venables Valley road.
OWNER: GERALD G. KRAUSE, 312 Masters Road, Victoria.
METAL: Copper.
DESCRIPTION: The property is underlain by silicified Cache Creek rocks which contain mineralized quartz veins.
WORK DONE: Reconnaissance geological and geochemical surveys, 2.5 line-miles of detailed geochemical survey, and 40 feet of diamond drilling in two holes were done in 1970.
REFERENCE: Assessment Report 2947.

CORNWALL (No. 28, Fig. E)

LOCATION: Lat. 50° 41.5′-44′ Long. 121° 25′-28′ (92I/11W)
KAMLOOPS M.D. Two miles northeast of Cornwall Hills, 6.5 miles west of Ashcroft.
CLAIMS: CORNWALL 1 to 59.
ACCESS: By an all-weather road which runs southwestward from Highway 1, 3 miles north of Cache Creek, to McLean Lake, thence by four-wheel-drive vehicle.
OWNER: GERALD G. KRAUSE, 312 Masters Road, Victoria.
METAL: Copper.
DESCRIPTION: Diorite intrudes Cache Creek greenstone and Marble Mountain limestone. Within the diorite there is abundant disseminated pyrrhotite and numerous zones of weakness in which pyrrhotite, chalcopyrite, chalcocite, limonite, and garnierite have been identified. In one main north trending fault zone a gossan was discovered. Small, irregular serpentine bodies intrude the diorite.
WORK DONE: Work in 1970 comprised a reconnaissance geochemical survey over 9 line-miles, a detailed geochemical survey of Cornwall 5 and 6, a reconnaissance geological survey, and six trenches. In 1971 further geochemical work was done.
REFERENCES: Assessment Reports 2947, 3380.

TERRY (No. 52, Fig. E)

LOCATION: Lat. 50° 31.6′ Long. 121° 15.8′ (92I/11W)
50° 33.2′ 121° 16.4′
KAMLOOPS M.D. On the east bank of the Thompson River, 1 mile south of Spatsum.

CLAIMS: TERRY 1 to 67.

ACCESS: By the Ashcroft-Spatsum road east of the Fraser River, about 15 miles south from Ashcroft.

OWNER: LARGO MINES LTD., 1110, 505 Burrard Street, Vancouver 1.

METALS: Copper, iron.

DESCRIPTION: Chalcopyrite, malachite, and magnetite are disseminated in two main gossan zones in Cache Creek sedimentary rocks. The latter are intruded by a hybrid phase diorite of the Guichon Creek batholith. The two gossans are located on Terry 14 to 20 and 7 to 10 claims.

WORK DONE: Magnetometer and electromagnetic surveys, approximately 30 line-miles.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1962, pp. 28-46 (Spatsum); Assessment Reports 2257, 2980.

M (No. 214, Fig. E)

LOCATION: Lat. 50° 40′ Long. 121° 21′ (92I/11W)
KAMLOOPS M.D. At approximately 2,000 feet elevation on the east side of Highway 1, 9 miles south of Cache Creek.

CLAIMS: M 1 to 8, 1 and 2 Fractions, KAREN 1, 2, 4, 5.

ACCESS: By Highway 1 from Cache Creek, 10 miles.

OWNER: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Minor chalcopyrite and chalcocite and secondary copper minerals are found in an area where small granodiorite stocks intrude metavolcanic rocks. Minor chlorite and sericite alteration and intense pyritization are present in some areas.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Karen and M claims; geochemical soil survey, 335 samples; induced polarization and resistivity survey, 6.1 line-miles; electromagnetic survey, 12.9 line-miles; and magnetometer survey, 11 line-miles, all covering Karen 1 and 2, M 1-8, and M 1 and 2 Fractions; surface diamond drilling, one hole totalling 500 feet on M 44.

RJ (No. 213, Fig. E)

LOCATION: Lat. 50° 41′ Long. 121° 21′ (92I/11W)
KAMLOOPS M.D. At approximately 2,500 feet elevation straddling Highway 1, 9 miles south of Cache Creek.

CLAIMS: RJ, BEDARD, BABKIRK, LORING, DUNBAR, GORDON, PHILLIP.

ACCESS: By Highway 1 from Cache Creek, 10 miles.

OWNERS: A. Cameron and Delkirk Mining Ltd.

OPERATORS: CERRO MINING COMPANY OF CANADA LIMITED, 401, 1111 West Georgia Street, Vancouver 5 and DUCANEX RESOURCES LIMITED, 3701 Royal Trust Tower, Toronto Dominion Centre, Toronto, Ont.

METALS: Copper, silver.

DESCRIPTION: Erratic copper mineralization occurs in pyritized and silicified Cache Creek sedimentary and volcanic rocks. Alteration zones marked by prominent gossans are present.

WORK DONE: Induced polarization survey, 11 line-miles covering Bedard and RJ 1, 2, and 51 Fraction; surface diamond drilling, four holes totalling 1,966 feet on RJ 7.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 326.

JEFF, JACK (No. 27, Fig. E)

LOCATION: Lat. 50° 38'-40.5' Long. 121° 21'-25' (92I/11W)
KAMLOOPS M.D. On the north side of Oregon Jack Creek, 6 miles southwest of Ashcroft.

CLAIMS: JEFF 1 to 73, JACK 1 to 18.

ACCESS: One mile west from Highway 1 on the Oregon Jack Creek road.

OWNER: Gerald G. Krause.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: On the Jeff claims disseminated pyrite and minor chalcopyrite occur in sericite-quartz rock in Cache Creek mica schists. Traces of chalcopyrite and secondary malachite occur in a highly silicified facies of the Cache Creek limestones on the Jack claims.

WORK DONE: In 1970: reconnaissance geological and geochemical surveys; detailed geochemical survey on Jeff 3 and Jack 1-4; diamond drilling, five short holes on Jeff 3 and one hole on Jack 4. In 1971: surface geological mapping, 1 inch equals 400 feet covering Jeff and Jack claims; geochemical soil survey, 1,123 samples covering six Jack and 49 Jeff claims; induced polarization survey, 42 line-miles covering six Jack and 47 Jeff claims; electromagnetic survey, 24.9 line-miles covering 33 Jeff claims; magnetometer survey, 58 line-miles covering six Jack and 44 Jeff claims; surface diamond drilling, two holes totalling 322 feet on Jeff 4.

REFERENCES: Assessment Reports 2947, 2978, 3359.

BULL (No. 274, Fig. E)

LOCATION: Lat. 50° 56.4'-57.7' Long. 121° 29'-32.2' (92I/13E, 14W)
KAMLOOPS M.D. Eleven miles northwest of Cache Creek.

CLAIMS: BULL 1 to 58.

ACCESS: By road from Cache Creek, 17.5 miles.

OWNER: MARU URANIUM MINES LTD., 608, 850 West Hastings Street, Vancouver 1.

WORK DONE: Magnetometer and geochemical surveys.

REFERENCE: Assessment Reports 3288, 3289.

CC (No. 29, Fig. E)

LOCATION: Lat. 50° 47′-49.5′ Long. 121° 13′-18′ (92I/14)
KAMLOOPS M.D. At approximately 2,000 feet elevation astride Highway 1, from 2 to 5 miles east of Cache Creek.

CLAIMS: CC 1 to 36.

ACCESS: By Highway 1 east from Cache Creek, 2 miles.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

DESCRIPTION: Exposed rock is fissile, steeply dipping, black Jurassic shale intruded by northwesterly trending, fine-grained, white quartz porphyry dykes. Vesicular basalt is exposed on one claim.

WORK DONE: Magnetometer survey, 35 line-miles covering CC 1-36.

REFERENCE: Assessment Report 3125.

BOOTS, SADDLE (No. 54, Fig. E)

LOCATION: Lat. 50° 51.2′-55.5′ Long. 121° 19′-23.5′ (92I/14W)
KAMLOOPS M.D. On the east side of Highway 97, 7 miles north of Cache Creek.

CLAIMS: BOOTS, SADDLE, BE-BE, PINTO, totalling approximately 100.

ACCESS: By Highway 97 from Cache Creek.

OPERATOR: SCURRY-RAINBOW OIL LIMITED, 539 Eighth Avenue SW., Calgary, Alta.

DESCRIPTION: The claims are underlain by Early Tertiary conglomerates and lavas of the Kamloops Group.

WORK DONE: Induced polarization survey, 34 line-miles on the Boots, Saddle, Be-Be, and northern part of Pinto claims; work done in late 1970 and early 1971.

REFERENCE: Assessment Report 3142.

SONNY, CHER (No. 177, Fig. E)

LOCATION: Lat. 50° 52′ Long. 121° 21′ (92I/14W)
KAMLOOPS M.D. At elevations of 2,000 to 3,500 feet 4 miles northwest of Cache Creek, 2 miles east of the Bonaparte River.

CLAIMS: SONNY 1 to 30, CHER 1 to 20.

ACCESS: By dirt road off Highway 97, 5 miles north of Cache Creek.

OPERATOR: ACROLL OIL & GAS LTD., 574 Calgary Place One, 330 Fifth Avenue SW., Calgary 1, Alta.

DESCRIPTION: The claims are underlain by rocks of the Cache Creek and Kamloops Groups.

WORK DONE: Magnetometer survey, 10 line-miles on Cher 1, 2, 4, 6, 8, 10 and Sonny 16-27, 29, 30.

REFERENCE: Assessment Report 3332.

MARS (No. 56, Fig. E)

LOCATION: Lat. 50° 48.0′-49.8′ Long. 121° 22.3′-24.0′ (92I/14W)
KAMLOOPS M.D. The property is centred 2.5 miles west of Cache Creek.

CLAIMS: MARS 1 to 36.
ACCESS: By a logging road which runs southerly from Highway 97 at a point 3 miles northwest of Cache Creek.
OPERATOR: NORTHAIR MINES LTD., 811, 850 West Hastings Street, Vancouver 1.
WORK DONE: Geochemical soil survey, 780 samples.
REFERENCE: Assessment Report 3071.

MA, KID (No. 55, Fig. E)

LOCATION: Lat. 50° 51.5'-53.5' Long. 121° 23.0'-25.5' (92I/14W)
KAMLOOPS M.D. On the west side of Highway 97, at the intersection of Highway 12, 6 miles northwest of Cache Creek.
CLAIMS: MA, KID, MAY, FUZZY, MAP, totalling 57.
ACCESS: By Highways 97 and 12.
OPERATORS: ADERA MINING LIMITED, 617, 789 West Pender Street, Vancouver 1; NORTHAIR MINES LTD., 811, 850 West Hastings Street, Vancouver 1; and SELECT RESOURCES LTD., 800, 789 West Pender Street, Vancouver 1.
WORK DONE: Magnetometer survey on the Ma and May claims; geochemical soil survey, approximately 1,000 samples on all claims.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 325; Assessment Reports 3039, 3152.

BUG, IRISH, GOSSAN (No. 249, Fig. E)

LOCATION: Lat. 50° 54.7'-56.5' Long. 121° 23.4'-25.0' (92I/14W)
KAMLOOPS M.D. Between elevations of 1,700 and 2,400 feet 9 miles north of Cache Creek.
CLAIMS: BUG, IRISH, GOSSAN, PIT, IRA.
ACCESS: By Highway 97 from Cache Creek, 8.5 miles.
OWNER: ROLLING HILLS COPPER MINES LIMITED, Box 4183, Station D, Vancouver 9.
METALS: Copper, molybdenum.
DESCRIPTION: The ground is underlain by altered Cache Creek metasedimentary rocks.
WORK DONE: Surface geological mapping; induced polarization survey; surface diamond drilling, seven holes totalling 6,000 feet; percussion drilling, 10 holes totalling 1,000 feet.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 325.

McLEAN (No. 53, Fig. E)

LOCATION: Lat. 50° 49' Long. 121° 24' (91I/14W)
KAMLOOPS M.D. Three miles west of Cache Creek, immediately north of Indian Reserve 3.
CLAIMS: McLEAN, totalling 16 claims and 1 fraction.
ACCESS: From Highway 97 by a logging road which joins the highway at a point on Indian Reserve 3, 3 miles northwest of Cache Creek.

OWNER: Select Resources Ltd.

OPERATOR: ADERA MINING LIMITED, 617, 789 West Pender Street, Vancouver 1.

WORK DONE: Magnetometer survey on McLean 9 and 14; geochemical soil survey, approximately 500 samples on all claims.

REFERENCE: Assessment Report 3153.

HAM, EGGS (No. 225, Fig. E)

LOCATION: Lat. 50° 49.7'-52.3' Long. 121° 24'-26' (92I/14W) KAMLOOPS M.D. At elevations of 3,000 to 4,000 feet 1 mile west of the Bonaparte River, 5 miles northwest of Cache Creek.

CLAIMS: EGGS 1 to 30, HAM 1 to 19, STEW 1 to 12.

ACCESS: From Cache Creek by gravel road through the Bonaparte Indian Reserve.

OPERATOR: ACROLL OIL & GAS LTD., 574 Calgary Place One, 330 Fifth Avenue SW., Calgary 1, Alta.

WORK DONE: Magnetometer survey on Eggs 1-12, 28-30, Ham 1-13, and Stew 1-4.

REFERENCE: Assessment Report 3331.

JEFF, LA (No. 196, Fig. E)

LOCATION: Lat. 50° 57.4' - 51° 01.5' Long. 121° 24.2'-27.3' (92I/14W) KAMLOOPS M.D. At elevations of 2,100 to 3,600 feet north of Scottie Creek and east of Loon Lake road, 12 miles north-northwest of Cache Creek.

CLAIMS: JEFF 1 to 60, LA 1 to 25.

ACCESS: By Highway 97 and Hunters Ranch road from Cache Creek.

OWNER: Largo Mines Ltd.

OPERATORS: LARGO MINES LTD. and ARLINGTON SILVER MINES LTD., 1110, 505 Burrard Street, Vancouver 1.

DESCRIPTION: The claims are underlain by rocks of the Cache Creek Group, with volcanic rocks of the Kamloops Group of Tertiary age overlying them unconformably in the northern part of the property.

WORK DONE: Magnetometer, geochemical, and geological surveys.

REFERENCE: Assessment Report 3413.

ED, JOE (No. 226, Fig. E)

LOCATION: Lat. 50° 50.2'-52.4' Long. 121° 26.0'-28.2' (92I/14W) KAMLOOPS M.D. Four miles northwest of Cache Creek, 2.5 miles west of the Bonaparte River and north of McLean Lake.

CLAIMS: ED, JOE, RON, totalling 52 claims and 3 fractions.

ACCESS: From Highway 12, 3 miles west of the junction with Highway 97.

OWNER: MINERAL MOUNTAIN MINING CO. LTD., 506, 540 Burrard Street, Vancouver 1.

WORK DONE: Magnetometer survey on Ed and Ron claims.

REFERENCE: Assessment Report 3290.

MAGGIE MINE (No. 226, Fig. E)

By E. Sadar

LOCATION: Lat. 50° 55.4′ Long. 121° 25.7′ (92I/14W)
KAMLOOPS M.D. At approximately 2,500 feet elevation, immediately west of Highway 97 in the Bonaparte Valley, 9 miles north of Cache Creek.
CLAIMS: The company holds Mineral Lease M-33 and 99 claims comprising the BETH, M, MAG, and MM.
ACCESS: By Highway 97, 9 miles northwest from Cache Creek.
OWNER: BETHLEHEM COPPER CORPORATION LTD., 2100, 1055 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Disseminated pyrite, chalcopyrite, and molybdenite occur in altered volcanic and intrusive rocks. Indicated geological reserves are reported to total 200 million tons grading 0.4 per cent copper equivalent in an area approximately 1,000 feet wide and 4,000 feet long.
WORK DONE: Surface diamond drilling, 17 holes totalling 28,218 feet.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1915, pp. 284, 285; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 324.

MILK (No. 272, Fig. E)

LOCATION: Lat. 50° 50.8′-51.6′ Long. 121° 28.7′-30.0′ (92I/14W)
KAMLOOPS M.D. At elevations of 2,500 to 4,000 feet north of Gallagher Lake, 7 miles northwest of Cache Creek.
CLAIMS: MILK 1 to 33.
ACCESS: By gravel road which crosses Highway 12, 3 miles west of the junction of Highways 12 and 97.
OPERATOR: ACROLL OIL & GAS LTD., 574 Calgary Place One, 330 Fifth Avenue SW., Calgary 1, Alta.
WORK DONE: Magnetometer survey, 15 line-miles on Milk 15, 17, 20, and 22-33.
REFERENCE: Assessment Report 3412.

SUE (No. 195, Fig. E)

LOCATION: Lat. 50° 58.2′ Long. 121° 29.2′ (92I/14W)
KAMLOOPS M.D. Approximately 1 mile northwest of the Bonaparte River on Highway 97, 15 miles north of Cache Creek.
CLAIMS: SUE 1 to 11.
ACCESS: By Highway 97 from Cache Creek, 15 miles.
OWNER: ALICE LAKE MINES LIMITED, 327, 736 Granville Street, Vancouver 2.
WORK DONE: Geochemical and electromagnetic surveys.
REFERENCE: Assessment Report 3245.

ARGO (No. 180, Fig. E)

LOCATION: Lat. 50° 53.8′ Long. 120° 00.5′ (92I/16E)
KAMLOOPS M.D. At elevations of 2,400 to 4,300 feet on the west side of Louis Creek, 21 miles northeast of Kamloops.

CLAIMS: ARGO 1 to 20.
ACCESS: From Kamloops by Highway 5 and the Heffley Creek and Louis Creek roads.
OWNER: W. J. STUART, 910 Calverhall Street, North Vancouver.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs in quartz veins in argillite.
WORK DONE: Electromagnetic and self-potential surveys were done on Argo 1-8 during 1970 and 1971.
REFERENCE: Assessment Report 3299.

EVE (No. 181, Fig. E)

LOCATION: Lat. 50° 50.4' Long. 120° 04.5' (92I/16E)
KAMLOOPS M.D. On the north shore of Heffley Lake, three-quarters of a mile east of the east boundary of Indian Reserve 5.
CLAIMS: EVE 1, 3, 5, 6, 8, 9.
ACCESS: By road from Kamloops, 16 miles.
OWNER: WESTERN CANADA STEEL LIMITED, 450 SE. Marine Drive, Vancouver 15.
METAL: Iron.
WORK DONE: Magnetometer survey on Eve 5 and 6.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 320; Assessment Report 3281.

POLE STAR (No. 248, Fig. E)

LOCATION: Lat. 50° 52.8' Long. 120° 20.1' (92I/16W)
KAMLOOPS M.D. At approximately 3,000 feet elevation opposite Heffley Creek settlement, between Lanes and Jamieson Creeks, 3 miles west of the North Thompson River.
CLAIMS: Mineral Lease M-29, POLE STAR (Lot 1012).
ACCESS: By logging road from the Westsyde road, 3 miles.
OWNER: ELECTRA MINES LTD., c/o 4189 Quesnel Drive, Vancouver 8.
METALS: Lead, silver.
DESCRIPTION: A quartz vein occurs in an intrusive plug.
WORK DONE: Trenching, approximately 100 feet; underground work, approximately 8 feet (deepening shaft).
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 320.

PEMBERTON 92J

LONDON (No. 139, Fig. E)

LOCATION: Lat. 50° 04.5' Long. 122° 55.3' (92J/2W)
VANCOUVER M.D. At approximately 4,000 feet elevation on Fitzsimmons Creek, 4 miles southeast of Alta Lake.

CLAIMS: The Crown-granted claims ROYAL EDWARD, LONDON, HARD CASH, IRON HAT, ALBANY, TONOPAH, IRON WEDGE FR. (Lots 2159 to 2163, 2165, 2166); LONDON 11 to 15, AXE 1 to 8.
ACCESS: By road from Alta Lake, 6 miles.
OWNER: New Jersey Zinc Exploration Company (Canada) Ltd.
OPERATOR: THE GRANBY MINING COMPANY LIMITED, 507, 1111 West Georgia Street, Vancouver 5.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs in sheared crystal tuff or granodiorite intrusive rock adjoining a contact with greenstone and sedimentary rocks.
WORK DONE: Percussion drilling, 23 holes totalling 1,026 feet on London (Lot 2160).
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 192.

RM (No. 183, Fig. E)

LOCATION: Lat. 50° 09.7′ Long. 122° 58′ (92J/2W)
VANCOUVER M.D. At elevations of 2,100 to 5,000 feet near Nineteen Mile Creek and Green Lake, approximately 5 miles north-northeast of Alta Lake.
CLAIMS: RM 9 to 56.
ACCESS: By Highway 99 from Pemberton, 19 miles.
OWNER: BATTLECREEK MINES LTD., 1880, 1055 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Chalcopyrite-pyrite mineralization occurs disseminated in rocks of dioritic composition of the Cheakamus Lake-Alta Lake pendant.
WORK DONE: Geological mapping; geochemical soil survey, 10.37 line-miles.
REFERENCE: Assessment Report 3274.

WARMAN (No. 184, Fig. E)

LOCATION: Lat, 50° 07.5′ Long. 123° 06′ (92J/3E)
VANCOUVER M.D. One mile east of Callaghan Creek and 30 miles north of Squamish.
CLAIMS: WARMAN 1 to 13.
ACCESS: From the Pemberton highway by 8 miles of logging road and 1 mile of tractor road and trail.
OWNERS: M. P. WARSHAWSKI and A. H. MANIFOLD, 6326 Montgomery Street, Vancouver 13.
METALS: Gold, copper, silver, lead, zinc.
DESCRIPTION: Galena, sphalerite, and chalcopyrite occur in quartz-carbonate veins in silicified and carbonatized andesite.
WORK DONE: Geological and geochemical surveys on Warman 1-11.
REFERENCE: Assessment Report 3273.

VAN, SUNNY CAVE (No. 144, Fig. E)

LOCATION: Lat. 50° 04′ Long. 123° 08′ (92J/3E)
VANCOUVER M.D. Between 1,450 and 3,500 feet elevation 1 mile south to 5 miles north of Brandywine Falls.

CLAIMS: VAN 1 to 55, 57 to 90, SUNNY CAVE, SUNNY CAVE 1 to 28, STAR 1 and 2, MAT 1 to 8, PETER 1, VERN 8, MIL, ASH, ELM, BRU, DOU, SPINE, THYNE, MINE, LU, JO, totalling approximately 140.

ACCESS: By Highway 99 from Squamish, 26 miles.

OWNER: Van Silver Explorations Ltd.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Copper, silver, zinc, lead, tungsten.

DESCRIPTION: Chalcopyrite, sphalerite, galena, and scheelite occur in veins and as fracture fillings in chloritized and epidotized metadiorite.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 1,898 samples; induced polarization survey, 4.7 line-miles; and electromagnetic surveys, 55.7 line-miles covering most of the claims; surface diamond drilling, nine holes totalling 2,733 feet on Sunny Cave 1 and 12, Vern 8, Lu, and Spine claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 231; Assessment Report 3371.

ASTRA, CAMBRIA (No. 212, Fig. E)

LOCATION: Lat. 50° 05' Long. 123° 08' (92J/3E)
VANCOUVER M.D. Between 2,500 and 3,250 feet elevation on the north side of Brandywine Creek, 3 to 5 miles northwest of McGuire Station.

CLAIMS: CALLAGHAN, TARN, BILL 1, ED 2, PGE 3, CPR 4, AL, and others.

ACCESS: By road from McGuire Station, 3.5 miles.

OWNER: Barkley Valley Mines Ltd.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METALS: Silver, lead, zinc, copper.

DESCRIPTION: Widespread low-grade mineralization (pyrite, chalcopyrite, sphalerite, galena) occurs, with some localized higher grade concentrations, in altered sedimentary and volcanic rocks surrounded by diorite and granodiorite of the Coast Plutonic Complex.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet; geochemical soil survey, 109 samples; electromagnetic surveys, 3.2 line-miles; surface diamond drilling, three holes totalling 805 feet, all on Callaghan claim.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 230.

ED (No. 32, Fig. E)

LOCATION: Lat. 50° 30.8' Long. 122° 24.0' (92J/8W, 9W)
LILLOOET M.D. At the south end of Anderson Lake, along the valley of Haylmore Creek.

CLAIMS: ED 1 to 54, 59 to 64, 66 to 72, 75 to 128, 131 to 152.

ACCESS: By secondary road from Pemberton to D'Arcy at the south end of Anderson Lake, thence by logging roads along the valley of Haylmore Creek.

OPERATOR: FOURBAR MINES LTD., 13th Floor, 355 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The claims are underlain by a series of Late Paleozoic and/or Early Mesozoic sedimentary and volcanic rocks which have been intruded by granitic rocks chiefly of Jurassic age. Copper mineralization was discovered in the vicinity of Steep Creek, a south flowing branch of Haylmore Creek, in 1969.

WORK DONE: A geochemical survey was carried out over 40 line-miles in 1970. Approximately 1,000 soil and silt samples were collected for analysis.

REFERENCE: Assessment Report 2864.

SNO (No. 140, Fig. E)

LOCATION: Lat. 50° 35.5′-37.5′ Long. 122° 40′-43′ (92J/10E)
LILLOOET M.D. At approximately 7,400 feet elevation on the west side of Phelix Creek, 3 miles north of Birkenhead Lake.

CLAIMS: SNO 1 to 60.

ACCESS: By helicopter from Birkenhead Lake, 3 miles.

OWNER: DeKALB MINING CORPORATION, 635 Sixth Avenue SW., Calgary 1, Alta.

METALS: Copper, molybdenum.

DESCRIPTION: Disseminated copper and molybdenum were noted in granitic rock near a quartzitic roof pendant. The rock is rusty and stained due to weathering of pyrite.

WORK DONE: Claims and surface workings mapped; surface geological mapping, 1 inch equals 50 feet covering all claims.

BRALORNE MINE (No. 285, Fig. E)

By E. Sadar

LOCATION: Lat. 50° 46′ Long. 122° 48′ (92J/10W, 15W)
LILLOOET M.D. On Cadwallader Creek, 5 miles south of Gold Bridge.

CLAIMS: One hundred and forty-nine comprising the Bralorne group.

ACCESS: On Lillooet-Bralorne road, 70 miles west of Lillooet.

OWNER: BRALORNE CAN-FER RESOURCES LIMITED, 355 Burrard Street, Vancouver 1; mine address, Box 367, Bralorne.

METAL: Gold (production shown in Table 1).

WORK DONE: Normal operations continued to the end of August, when economic ore reserves were exhausted and mining ceased. Milling and clean-up continued during September. At year end, the property closed, and two men remained as caretakers and to dispose of equipment.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 225.

FALL (No. 145, Fig. E)

LOCATION: Lat. 50° 40′ Long. 123° 29′ (92J/11W)
LILLOOET M.D. Between 2,100 and 4,500 feet elevation about 1 mile south of the junction of Salal Creek and Lillooet River.

CLAIMS: FALL 1 to 42, VENT 1 to 36.
ACCESS: By helicopter from Pemberton Meadows, 12 miles.
OWNER: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.
METAL: Molybdenum.
DESCRIPTION:

A complex leucogranite stock showing fine, medium, and coarse-grained phases intrudes andesites which are intensely hornfelsed. Quartz, sericite, hematite, magnetite, pyrite, and molybdenite are present in all exposures found to date. An extensive and complex Tertiary volcanic history has taken place in the immediate vicinity with expulsion of various acid porphyry flows, basalts, vesicular glassy flows, etc., culminating in the expulsion 2,600 years ago of a large quantity of pumice and volcanic ash, known as the Bridge River eruption. Numerous volcanic pipes or vents are found on the property, probably including the vent for the Bridge River event. Molybdenite is smoky and occurs in multibanded quartz veins and stockworks. Intrusive exposures are found only in creek bottoms, the rest of the ground being covered by lava flows, pumice, and ash. A sample from 60 feet of trenching assayed more than .25 per cent molybdenite and another from 93 feet of trenching averaged .16 per cent molybdenite. The rock types and structure are very similar to the R, EE claims, with the exception that the Fall claims are more deeply buried and are exposed at a higher structural level.

WORK DONE: Topography and surface workings mapped; surface geological mapping, 1 inch equals 100 feet covering Fall 1-12 and 1 inch equals 500 feet covering Fall 13-42; geochemical survey covering Fall 1-12; trenching, 243 feet on Fall 1-12.

R, EE (No. 186, Fig. E)

LOCATION: Lat. 50° 46.9′ Long. 123° 22.5′ (92J/11W, 12E, 14W) LILLOOET M.D. Between 5,500 and 7,000 feet elevation on Salal Creek, a tributary of the Lillooet River, 40 miles northwest of Pemberton.
CLAIMS: R, EE, PLUG, BAT, BALL, BETA, BERG, BEST, totalling 352.
ACCESS: By helicopter from Pemberton Meadows, 42 miles.
OWNER: Salal Molybdenum Mines Limited.
OPERATOR: CERRO MINING COMPANY OF CANADA LIMITED, 401, 1111 West Georgia Street, Vancouver 5.
METAL: Molybdenum.
DESCRIPTION: Molybdenite occurs in veins and along joints in a differentiated granitic stock which intrudes rocks of the Coast Plutonic Complex with weak to moderate chloritization, kaolinization, silicification, and minor sericitization.
WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering R, EE, Best, and Berg claims and 1 inch equals 1,000 feet covering R, EE, Best, and Beta claims; geochemical survey, 49 rock samples covering EE, Bat, and Ball claims; ground magnetometer survey, 6.3 line-miles covering Plug and Bat claims.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 223; Assessment Reports 3094, 3275, 3370.

BR (No. 142, Fig. E)

LOCATION: Lat. 50° 54.2′ Long. 123° 30.0′ (92J/13E, 14W)
LILLOOET M.D. At approximately 6,000 feet elevation on the north fork of Bridge River, about 4 miles north of Bridge Glacier, 30 miles west of Gold Bridge.

CLAIMS: BR 1 to 48.

ACCESS: By helicopter northwest from Pemberton, 43 miles.

OWNER: CANEX AERIAL EXPLORATION LTD., 800, 1030 West Georgia Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs on joints and in quartz veins in fractured quartz monzonite and is accompanied by propylitic to argillic alteration.

WORK DONE: Surface workings mapped; surface geological mapping, 1 inch equals 200 feet covering BR 1-8, 14, 16, 18 and 47; surface diamond drilling, four holes totalling 2,658 feet on BR 3-5 and 7.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 222.

AUTUMN (No. 141, Fig. E)

LOCATION: Lat. 50° 54.5′-56′ Long. 123° 54′-57′ (92J/13W)
VANCOUVER M.D. Between 5,000 and 7,500 feet elevation near the foot of Stanley Smith Glacier, 11 miles southwest of the south end of Chilko Lake.

CLAIMS: AUTUMN 1 to 48.

ACCESS: By helicopter from the south end of Chilko Lake, 8 miles.

OWNER: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

METALS: Copper, molybdenum.

DESCRIPTION: Gneissic rocks and intrusive breccias have been intruded by a younger biotite-quartz monzonite stock. A large area of silicified rocks of all types contains a partially delimited zone approximately 6,500 feet east-west and up to 1,800 feet north-south of persistent chalcopyrite, bornite, molybdenite, pyrite, and magnetite mineralization. Quartz, K-feldspar, and sericite are the primary alteration products.

WORK DONE: Topography and surface workings mapped; surface geological mapping, 1 inch equals 100 feet and 1 inch equals 500 feet covering Autumn 1-42; trenching, 500 feet on Autumn 21-24; surface diamond drilling, five holes totalling 192 feet on Autumn 21-24.

STAR (No. 30, Fig. E)

LOCATION: Lat. 50° 46.5′-48.5′ Long. 123° 20′-27.5′ (92J/14W)
LILLOOET M.D. From 6,000 to 8,700 feet elevation along the north and east sides of Salal Glacier, between Bridge River and Salal Creek.

CLAIMS: STAR, N STAR, totalling approximately 110. (Part of the STAR claims were restaked as N STAR claims in 1971.)

ACCESS: By helicopter from Pemberton Meadows, 20 miles.

OWNER: SILVER STANDARD MINES LIMITED, 808, 602 West Hastings Street, Vancouver 2.

METALS: Molybdenum, tungsten, silver, zinc, lead, copper.

DESCRIPTION: A multiphase leucogranite plug approximately 6 miles east-west and 5 miles north-south intrudes foliated Coast Range intrusive rocks. Widespread Quaternary volcanic rocks and associated vents are present. Hematite, magnetite, molybdenite, sphalerite, galena, and scheelite are present in silicified and pyritized zones. Low-grade molybdenite has been found over 5 to 6 square miles of this stock.

WORK DONE: Surface geological mapping, 1 inch equals 500 feet covering N Star 1-66; airborne magnetometer survey, 26 square miles covering former Star 1-142 (late 1970 and early 1971); geochemical survey, 10 rock samples covering N Star 1-66; reconnaissance geochemical silt survey; trenching, 1,400 feet on N Star 1-66.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1966, p. 140 (Sal, R, EE); Assessment Report 2878.

GRISWOLD (No. 143, Fig. E)

LOCATION: Lat. 50° 54.7′ Long. 123° 25.5′ (92J/14W)
LILLOOET M.D. At approximately 5,000 feet elevation on Thunder Creek, 2 miles above the north fork of Bridge River, 26 miles west of Gold Bridge.

CLAIMS: RUSSNOR 1 to 4, MEL 1 to 36.

ACCESS: By air from Lillooet, 72 miles.

OWNER: THUNDER CREEK MINES LTD., Box 466, Lillooet.

METALS: Copper, molybdenum.

WORK DONE: Geological examination and geochemical soil survey.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 223; Assessment Report 3320.

ROCK, ROY (No. 31, Fig. E)

LOCATION: Lat. 50° 49.2′ Long. 122° 45.2′ (92J/15)
LILLOOET M.D. At 8,000 feet elevation on the west slope of Truax Mountain, 4.5 miles east-southeast of Gold Bridge.

CLAIMS: ROCK 1 to 10, ROY 1 to 8.

ACCESS: By helicopter from Gold Bridge.

OWNER: WESTVIEW MINING CO. LTD., 4749 Grassmere Street, Burnaby.

METALS: Silver, antimony.

DESCRIPTION: The claims are underlain by quartz diorite of the post-Lower Cretaceous Bendor batholith. Mineralization consists of stibnite, realgar, and orpiment in a quartz or quartz-carbonate gangue.

WORK DONE: Approximately 8.5 line-miles of magnetometer and electromagnetic surveying was done in 1970 on Rock 1-8.

REFERENCE: Assessment Report 3101.

OMEN, NEMO (No. 197, Fig. E)

LOCATION:	Lat. 50° 52.3′ Long. 122° 46.5′ (92J/15W) LILLOOET M.D. On the south side of Carpenter Lake, 3.5 miles northeast of Gold Bridge.
CLAIMS:	OMEN 1 to 8, NEMO 1 to 8, EROS 1, 2, 4, 5, OMEN FR., NEMO FR., THIN FR., BLUFF FR., NOVA FR., EROS FR. (Lots 7660 to 7663, 7463 to 7465, 7496, 7651 to 7658, 7497 to 7498, 7500 to 7506, 7499, respectively).
ACCESS:	Via 3.5 miles of gravel road from Gold Bridge, along the south side of the Bridge River and Carpenter Lake.
OPERATOR:	T.V.I. MINING LTD., 2405, 505 Sixth Street SW., Calgary, Alta.
METAL:	Antimony.
DESCRIPTION:	The claims are underlain by a succession of alternating sedimentary and volcanic rocks of the Fergusson Group.
WORK DONE:	Geological mapping and geochemical and electromagnetic surveys.
REFERENCES:	*Geol. Surv., Canada,* Mem. 130, p. 73 (Reliance); Assessment Report 3276.

EAGLE (No. 211, Fig. E)

By E. Sadar

LOCATION:	Lat. 50° 55′-57.5′ Long. 122° 12′-17.5′ (92J/16) LILLOOET M.D. On Yalakom River, at the mouth of Shulaps Creek.
CLAIMS:	Eighty-four including EAGLE, YALAKOM, LODE, KATE, SUN, CONDOR, BUCK, ROCK, AB, B, and WE.
ACCESS:	From the Lillooet-Bralorne road via 8 miles of road along Yalakom River.
OWNER:	CONDOR MINES LTD., 306, 402 West Pender Street, Vancouver 3.
METAL:	Mercury.
DESCRIPTION:	Cinnabar is found along fault zones and fractures in intercalated volcanic and sedimentary rocks. Some disseminated cinnabar also occurs where the bedrock is carbonatized.
WORK DONE:	One hundred cubic yards of trenching and three-quarters of an acre of stripping were done on the Lode 1-5, Kate 1-9, and Sun 1 and 2 claims. Eight hundred feet of underground exploration work was completed on the Yalakom 1 claim. In addition, the surface and underground workings were surveyed and a topography map was made.
REFERENCES:	*Minister of Mines, B.C.,* Ann. Rept., 1968, p. 161; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 188.

BUTE INLET 92K

LINDA (No. 104, Fig. E)

LOCATION:	Lat. 50° 00′ Long. 124° 05′ (92K/1E) Report on this property in section 92F/16E.

OL (No. 258, Fig. E)

LOCATION: Lat. 50° 07'-09' Long. 124° 30'-32.5' (92K/2E)
VANCOUVER M.D. At approximately 1,000 feet elevation east of Olsen Lake between Theodosia River and Powell Lake.

CLAIMS: OL 1 to 40, OLSON 1 and 2.

ACCESS: By floatplane from Powell River, 15 miles.

OPERATOR: TEXADA MINES LTD., Box 10, Gillies Bay.

METALS: Copper, gold, silver.

DESCRIPTION: Chalcopyrite and pyrite occur in a skarn zone in limestone at a granitic contact.

WORK DONE: Topography and surface workings mapped; surface geological mapping, 1 inch equals 100 feet; geochemical survey, 229 samples; magnetometer survey, 4.2 line-miles; trenching, 245 feet, all on Olson 1 and 2.

OK (No. 103, Fig. E)

LOCATION: Lat. 50° 00'-03' Long. 124° 37.5'-42' (92K/2E)
VANCOUVER M.D. At approximately 3,000 feet elevation 3 miles south of Theodosia Inlet, 8 miles north-northwest of Powell River.

CLAIMS: OK, IN, MBM, KYDIDLE, totalling 169 claims and fractions.

ACCESS: By road from Powell River, approximately 10 miles.

OPERATOR: DUVAL INTERNATIONAL CORPORATION, 204, 355 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: A dyke-like mass of biotite-chlorite-muscovite quartz monzonite porphyry intrudes hornblende-biotite granodiorite of the Coast Plutonic Complex. The granodiorite is strongly fractured, contains quartz veins, and is altered with the formation of quartz, biotite, chlorite, and orthoclase. Sulphide mineralization occurs in quartz veins. There are varied amounts of disseminated pyrite, chalcopyrite, and molybdenite in a halo around the porphyry.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet; road construction, 2 miles; trenching, 5,000 feet; percussion drilling, 12 holes totalling 2,380 feet.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 229.

CONTACT, COPPER VALLEY (No. 96, Fig. E)

LOCATION: Lat. 50° 06.5'-11' Long. 125° 13'-17' (92K/3)
NANAIMO M.D. The Copper Valley-David group is 2 miles northwest of Hyacinthe Bay, the CRE group is on the north side of Gowland Harbour, 1.5 miles west of Heriot Bay, and the remaining claims extend northwest from Open Bay.

CLAIMS: CONTACT 1 to 10, WFP 1 to 21, SNOOPY 1 to 4, QUAD 1 to 22, COPPER VALLEY 1 to 10, POD 1 and 2, DAVID 1 and 2, CRE 1 to 4.

ACCESS: By road from Heriot Bay, Quadra Island, 4 to 6 miles.

OWNER: PRINCE STEWART MINES LTD., 307, 475 Howe Street, Vancouver 1.

METALS: Copper, gold, silver, nickel.

DESCRIPTION: Contact metasomatic mineralization is found where Quatsino limestone equivalent is in contact with Island intrusions and chalcocite is found in Karmutsen volcanic rocks.

WORK DONE: Claims and surface workings mapped; surface geological mapping, 1 inch equals 1,500 feet covering Contact, WFP, Quad, and Snoopy claims; geochemical survey, 65 line-miles covering Contact, Quad, WFP, and Snoopy claims (partly done in 1970); magnetometer and electromagnetic surveys, 60 line-miles covering same claims as geochemical survey; self-potential, induced polarization, and resistivity surveys, 20 line-miles covering Copper Valley 4, Contact, Snoopy, Quad 1-6, 17, 18, and WFP 7-16 claims; road construction, 3 miles; trenching, about 1,600 feet on Copper Valley and Quad 11-14 claims; surface diamond drilling, three holes totalling 1,057 feet on Contact 1, 7 and WFP 7 claims;

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 281; Assessment Reports 3100, 3167.

COPPER BELL (No. 97, Fig. E)

LOCATION: Lat. 50° 07.6′ Long. 125° 16′ (92K/3W)
NANAIMO M.D. At approximately 400 feet elevation 3 miles northwest of Heriot Bay.

CLAIMS: COPPER BELL 1 to 6.

ACCESS: By ferry and road from Campbell River, 10 miles.

OWNER: QUADRA BELL MINING CO. LTD., 1161 South Murphy Street, Campbell River.

METAL: Copper.

DESCRIPTION: Chalcocite is associated with quartz in vertical faults in Karmutsen volcanic rocks.

WORK DONE: Trenching, 696 cubic feet.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 212.

LARK (No. 50, Fig. E)

LOCATION: Lat. 50° 04.5′ Long. 125° 31.0′ (92K/4E)
NANAIMO M.D. On the Camp 5 road, north of Boot Lake, 12 miles west of Campbell River.

CLAIMS: LARK 1, 2, 5 to 8, HAWK 1 and 2.

ACCESS: By the Camp 5 road west from Campbell River.

OWNER: JOHN SIROLA, 2228 Mathers Avenue, West Vancouver.

METAL: Copper.

WORK DONE: Line-cutting.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 70; Assessment Report 3180.

B, C (No. 33, Fig. E)

LOCATION: Lat. 50° 21.0′ Long. 124° 53.5′ (92K/7W)
VANCOUVER M.D. On the north and east slopes of Mount Hayes, 2 miles north of Pryce Channel at the mouth of Toba Inlet.

CLAIMS: B, C, totalling 42.

ACCESS: From Campbell River, 28 miles to the southwest, to Quatam Bay by floatplane or boat, thence 4 miles south by logging road; or by helicopter from Campbell River.

OWNER: D. C. WING, 13867 – 102nd Avenue, Surrey.

METAL: Copper.

DESCRIPTION: The claims are underlain by medium-grained quartz diorite of the Coast Plutonic Complex. On the B 46 claim, disseminated chalcopyrite occurs in a fracture zone in slightly silicified and pyritized diorite.

WORK DONE: Prospecting, reconnaissance geological mapping, and rock sampling were done in 1970.

REFERENCE: Assessment Report 3133.

SG (No. 166, Fig. E)

LOCATION: Lat. 51° 00.0′ Long. 124° 21.0′ (92K/16W)
VANCOUVER M.D. Between 3,000 and 5,500 feet elevation 2 miles north of the confluence of Southgate and Bishop Rivers.

CLAIMS: SAM 1 to 64.

ACCESS: By logging road from Bute Inlet, 25 miles.

OWNER: THE SWISS ALUMINIUM MINING CO. OF CANADA LTD., Box 835, Station A, Vancouver 1.

METAL: Copper.

DESCRIPTION: Weak copper mineralization is found in intrusive rocks of the Coast Plutonic Complex.

WORK DONE: Topography and surface workings mapped; surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 150 samples covering Sam 1, 2, 10, 17, 18, 25, 16, 33, 34, 41-43, 49-52, 57, and 58.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 58; Assessment Report 3272.

ALERT BAY 92L

TAMMY (No. 255, Fig. E)

LOCATION: Lat. 50° 16′ Long. 126° 04.5′ (92L/1E, 8E)
NANAIMO M.D. Between 1,800 and 2,500 feet elevation on Adam River, 9 air miles southwest of Sayward and 2 miles southwest of Keta Lake.

CLAIMS: TAMMY 1 to 10, M 1 to 37.

ACCESS: By road from Sayward, 15 miles.

OWNER: WESTERN STANDARD SILVER MINES LTD., Box 462, Kelowna.

DESCRIPTION: The claim group is underlain by limestone and volcanic rocks which are intruded by granodiorite and related intrusive rocks. Magnetite and disseminated chalcopyrite are reported.

WORK DONE: Surface geological mapping, 1 inch equals 500 feet covering all claims; geochemical soil survey, 12 line-miles covering all claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 278 (Boyes); Assessment Report 3306.

KODIAK (No. 34, Fig. E)

LOCATION: Lat. 50° 02.0' Long. 126° 49.0' (92L/2W)
ALBERNI M.D. On the west side of Zeballos River, 4 miles north of Zeballos.

CLAIMS: KODIAK 1 to 8, AG 1 and 3.

ACCESS: By road from Zeballos.

OWNER: NEW PRIVATEER MINE LIMITED, 329, 726 Granville Street, Vancouver 2.

WORK DONE: Thirteen line-miles of geochemical and magnetometer surveys.

REFERENCES: Assessment Reports 3056, 3057.

EASY (No. 35, Fig. E)

LOCATION: Lat. 50° 05.3'-11.2' Long. 127° 19.2'-22.5' (92L/3W)
ALBERNI M.D. On Kyuquot Peninsula, from Chamiss Creek to the head of Malksope River.

CLAIMS: EASY, 40 claims; ON, 10 claims; BP 1 and 2; BW 1 and 2.

ACCESS: By floatplane to Easy Inlet, the western extension of Kashutl Inlet, then by logging road and trail.

OPERATOR: FALCONBRIDGE NICKEL MINES LIMITED, 1112 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION:

The area is underlain chiefly by sedimentary and volcanic rocks of the Bonanza Subgroup. Mineralization is associated with quartz veining in both volcanic and sedimentary rocks and it also occurs as minor disseminations and veinlets of chalcopyrite.

The Easy claims cover a zone of widespread but minor chalcopyrite and pyrite. The On claims cover an extensive skarn zone containing minor disseminated sphalerite. On the BP claims is a showing of chalcopyrite, hematite, and magnetite in a shear zone in dark, calcareous, sedimentary rock. Dark green andesite containing minor disseminations and veinlets of chalcopyrite is exposed on the BW claims.

WORK DONE: Reconnaissance silt sampling and detailed soil sampling were carried out in 1970. A total of 1,700 silt samples and 220 soil samples was collected for analysis.

REFERENCE: Assessment Report 3008.

LOIS (No. 203, Fig. E)

LOCATION: Lat. 50° 16′ Long. 127° 37′ (92L/4E, 5E)
ALBERNI and NANAIMO M.D. At approximately 2,000 feet elevation 5 miles east of Klaskish Inlet, 11 miles south 40 degrees west of Port Alice.

CLAIMS: LOIS 1 to 36.

ACCESS: By helicopter from Port Alice, 11 miles.

OWNER: VANCO EXPLORATIONS LIMITED, 900, 1111 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum, cobalt.

DESCRIPTION: A quartz diorite plug intrudes a thick sequence of basic volcanic rocks. Sparse erratic disseminations of chalcopyrite and very minor molybdenite are widely scattered over the north half of the pluton.

WORK DONE: Trenching on Lois 9 and 30.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 283; Assessment Reports 3034, 3035.

YREKA (No. 167, Fig. E)

LOCATION: Lat. 50° 27.4′ Long. 127° 34.0′ (92L/5E)
NANAIMO M.D. At approximately 2,400 feet elevation on the west side of Neroutsos Inlet, 4 miles northwest of Jeune Landing and Rumble Beach.

CLAIMS: Sixteen Crown-granted and 77 located claims. The mine is located on SUPERIOR, READY CASH FR., and NS FR. (Lots 106, 109, and 111).

ACCESS: By boat from Rumble Beach, 4 miles.

OWNER: Green Eagle Mines Ltd.

OPERATOR: ISO EXPLORATIONS LTD., 7th Floor, 1177 West Hastings Street, Vancouver 1.

METALS: Copper, zinc.

DESCRIPTION: Chalcopyrite, galena, and sphalerite occur in skarns in the vicinity of a limestone-tuff contact and disseminated in small intrusions.

WORK DONE: Claims, topography, and surface and underground workings mapped; surface geological mapping, 1 inch equals 200 feet; geochemical stream sediment and soil survey, 1,000 samples; magnetometer survey, 10 line-miles; self-potential survey, 12 line-miles; trenching, 3,000 feet on Mountain King, New Comstock, Edison, and Edison Fraction; road construction, 2 miles, on east slope of Comstock Mountain.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 272; Assessment Reports 3164, 3165.

R (No. 48, Fig. E)

LOCATION: Lat. 50° 27.5′-29′ Long. 127° 34.5′-37.5′ (92L/5E)
NANAIMO M.D. On the west side of the outlet of Neroutsos Inlet, 8 miles northwest of Port Alice.

CLAIMS: R 1 to 14, 17 to 30, 33 to 48, SU 1 to 6, 11 to 16.

ACCESS: By boat from Coal Harbour, 10 miles to the north.

OWNER: CELTIC MINERALS LTD., 201, 714 West Hastings Street, Vancouver 1.

DESCRIPTION: The property is underlain by Quatsino Formation limestones and Bonanza volcano-sedimentary rocks.

WORK DONE: Geological mapping and a geochemical survey covering 9 line-miles were done on the R claims in 1970 and 1971.

REFERENCE: Assessment Report 3023.

TENT (No. 188, Fig. E)

LOCATION: Lat. 50° 19′ Long. 127° 36′ (92L/5E)
NANAIMO M.D. At approximately 1,500 feet elevation near the headwaters of Klaskish River, 8 miles southwest of Port Alice.

CLAIMS: TENT 1 to 114, 116, 118, 119; 130 and 131 Fractions.

ACCESS: By helicopter from Port Alice, 8 miles.

OWNER: VANCO EXPLORATIONS LIMITED, 900, 1111 West Hastings Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: Quartz diorite intrudes volcanic rocks. Scattered extremely low-grade chalcopyrite and molybdenite occur in fractures and quartz veins and as disseminations.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet; reconnaissance geochemical stream sediment and soil survey, 225 samples covering Tent 34, 36, 38, 39, 45-65; surface work, 65 trenches averaging 120 cubic feet on Tent 1, 3, 18, 22, and 29.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 271; Assessment Report 3234.

JARR (No. 98, Fig. E)

LOCATION: Lat. 50° 19.5′ Long. 127° 42′ (92L/5E)
NANAIMO M.D. Between 1,500 and 3,000 feet elevation on Mount Kotzebue, 1 mile north of Klaskino Inlet.

CLAIMS: JARR 11 to 32, 50 to 61, 121, 122.

ACCESS: By helicopter from Port Alice, 12 miles.

OWNER: AMERICAN SMELTING AND REFINING COMPANY, 504, 535 Thurlow Street, Vancouver 5.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite occurs as low-grade disseminations and in skarn within rocks of the Bonanza Subgroup.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering Jarr 15-20, 121, and 122; geochemical survey, 35 line-miles covering all claims; magnetometer survey covering Jarr 18-20; surface diamond drilling, six holes totalling 700 feet on Jarr 18, 20, and 54.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 271; Assessment Report 3166.

OLD SPORT MINE (No. 238, Fig. E)

By W. C. Robinson

LOCATION: Lat. 50° 23' Long. 127° 14.5' (92L/6E)
NANAIMO M.D. On the west side of Benson River, south of Benson Lake.
ACCESS: By 26 miles of road from Port McNeill.
OWNER: COAST COPPER COMPANY LIMITED (controlled by Cominco Ltd.), Port McNeill.
METAL: Copper (production shown in Table 1).
WORK DONE:

Drifting and crosscutting, 2,153 feet; subdrifting, 798 feet; raising, 3,949 feet; diamond drilling, 20,244 feet. During 1971, a new pumping system was installed in the No. 1 decline area. Two concrete plugs were installed beneath an old stope to provide a settling area for fines. Pumps were installed underground to discharge clear water to the surface. Other work included the incorporation of disused magnetite flotation cells into the copper flotation section of the concentrator to provide extra cleaner cells.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 273.

A, B, C (No. 37, Fig. E)

LOCATION: Lat. 50° 20.5'-22' Long. 126° 52'-55' (92L/7W)
NANAIMO M.D. On the north side of Kinman Creek, at the south end of Nimpkish Lake.
CLAIMS: A 1 to 11, 13 to 28, B 10 to 17, C 2, 4, 6, 8, 10.
ACCESS: By logging road a mile north from Nimpkish camp.
OWNER: WAVECOM DEVELOPMENT LTD. (formerly Trizec Development Ltd.), 201, 714 West Hastings Street, Vancouver 1.
DESCRIPTION: The claims are underlain by volcanic and sedimentary rocks of the Vancouver Group which have been intruded by Island intrusions.
WORK DONE: Reconnaissance geological and geochemical surveys were made over the claims in 1970.
REFERENCE: Assessment Report 2854.

B, C, E (No. 36, Fig. E)

LOCATION: Lat. 50° 21'-23' Long. 126° 53.5'-56.5' (92L/7W)
NANAIMO M.D. On the east side of Nimpkish Lake at the mouth of Storey Creek.
CLAIMS: B 1 to 9, C 1, 3, 5, 7, 9, 11 to 14, E 1 to 22.
ACCESS: From Nimpkish camp, 1.5 miles northward along the logging railway.
OWNER: ACHERON MINES LTD., 201, 714 West Hastings Street, Vancouver 1.
METALS: Iron, zinc.
DESCRIPTION: Minor magnetite and sphalerite are associated with skarn zones in Quatsino Formation limestone.
WORK DONE: Reconnaissance geological mapping and soil and silt sampling in 1970, detailed sampling in 1971.
REFERENCES: Assessment Reports 3009, 3401.

BOYES (No. 102, Fig. E)

LOCATION: Lat. 50° 15.5'-18.5' Long. 126° 02'-05' (92L/8E)
NANAIMO M.D. Between 1,500 and 2,000 feet elevation on the west side of Adam River, 2 miles southwest of Keta Lake.
CLAIMS: BOYES, BRUCE, GEO, DENNIS, KEVIN, totalling 103.
ACCESS: By private road from Sayward, 12 miles.
OWNER: Standard Silver Mines Ltd.
OPERATOR: CONOCO SILVER MINES LTD., Suite 3, 4647 Kingsway, Burnaby 1.
METALS: Copper, silver, gold.
DESCRIPTION: Chalcopyrite and bornite occur in veins and as disseminations in volcanic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet; geochemical soil survey, 1,400 samples; induced polarization survey; road construction, 1 mile; trenching and stripping.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 278; Assessment Reports 3236, 3403.

PRINCESS (No. 190, Fig. E)

LOCATION: Lat. 50° 33' Long. 126° 43' (92L/10E)
NANAIMO M.D. On Hanson Island, 12 miles east of Alert Bay.
CLAIMS: HAW 1 to 3.
ACCESS: By floatplane or boat from Alert Bay, 12 miles.
OWNER: CROYDON MINES LTD., 2700, 1177 West Hastings Street, Vancouver 1.
METALS: Copper; minor gold, silver.
DESCRIPTION: Chalcopyrite and bornite occur in fractures and amygdules in volcanic rocks of the Karmutsen Formation.
WORK DONE: Geochemical soil survey.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1916, p. 343 (Princess Group); Assessment Report 3368.

ISLAND COPPER MINE (No. 237, Fig. E)

By W. C. Robinson

LOCATION: Lat. 50° 36' Long. 127° 37' (92L/11W, 12E)
NANAIMO M.D. Between sea-level and 300 feet elevation on the north side of Rupert Arm, Port Hardy.
CLAIMS: One hundred and seventy-five claims and fractions, including BAY, COVE, JIM, COIR, RUPERT, INLET, ART.
ACCESS: From Port Hardy by road, 10 miles.
OWNER: UTAH MINES LTD., 412, 510 West Hastings Street, Vancouver 2; mine address, Box 370, Port Hardy.
METALS: Copper, molybdenum (production shown in Table 1).
WORK DONE:

Construction of the crushing and copper concentrating units, having a capacity of 33,000 tons per day, was completed and tuning-up of the mill commenced in October. The first shipment of copper concentrates was made in December. At the year-end approximately

99 per cent of proposed construction had been completed. The construction of a molybdenum circuit in the mill reamined to be completed although production of molybdenum concentrates is scheduled to begin early in 1972. Equipment in the mill includes six autogenous grinding units.

During the year 12,100,000 tons of waste material was removed from the pit. Equipment in the pit consists of fifteen 120-ton Unit Rig M-120 trucks, three 15-cubic-yard P&H 2100-B electric shovels, and two Bucyrus-Erie 60-R rotary drills.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 267-269.

A (No. 250, Fig. E)

LOCATION: Lat. 50° 40′ Long. 127° 35′ (92L/12E)
NANAIMO M.D. At approximately 1,500 feet elevation at the headwaters of Wanokana Creek, north of Holberg Inlet and south of Kains Lake, 9 miles west-southwest of Port Hardy.
CLAIMS: A 2 to 26, B 1 and 3, X 2 to 15.
ACCESS: By British Columbia forest access road for approximately 12 miles west of Port Hardy, southeast along a logging road for 1.5 miles, then on foot for 2 miles to the northern edge of the claim group.
OWNER: ELECTRA MINES LTD., 4189 Quesnel Drive, Vancouver 8.
METALS: Zinc, copper.
DESCRIPTION: A zinc and copper showing occurs in skarn.
WORK DONE: Trenching, approximately 150 feet.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 263, 264.

IDA (No. 39, Fig. E)

LOCATION: Lat. 50° 37′-39′ Long. 127° 38.5′-41′ (92L/12E)
NANAIMO M.D. On the north shore of Holberg Inlet, about 4 miles northwest of Coal Harbour.
CLAIMS: IDA, totalling approximately 60.
ACCESS: By helicopter from Port Hardy airport or by boat from Coal Harbour.
OPERATOR: PERRY, KNOX, HAUFMAN INC., 1500, 675 West Hastings Street, Vancouver 2.
WORK DONE: Approximately 5.2 line-miles of induced polarization surveying and 4.5 line-miles of magnetometer surveying were carried out in 1970.
REFERENCE: Assessment Report 2940.

EX (No. 38, Fig. E)

LOCATION: Lat. 50° 40.0′ Long. 127° 40.5′ (92L/12E)
NANAIMO M.D. Approximately 2.5 miles south of the east end of Kains Lake.
CLAIMS: EX, EX 1 Fraction.
ACCESS: From Port Hardy by logging road and 2 miles of rough trail.
OWNER: J. M. BLACK, 848 Prospect Avenue, North Vancouver.
WORK DONE: A scintillometer survey was done in 1970.
REFERENCE: Assessment Report 3105.

EXPO (No. 99, Fig. E)

LOCATION: Lat. 50° 36′-43′ Long. 127° 41′ - 128° 00′ (92L/12)
NANAIMO M.D. From sea-level to 2,000 feet elevation between Holberg Inlet and Nahwitti Lake.

CLAIMS: EXPO, DON, WAN, totalling 737 claims and fractions.

ACCESS: From Port Hardy, 15 to 30 miles.

OWNER: UTAH MINES LTD., 412, 510 West Hastings Street, Vancouver 2.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite and molybdenite occur within fractured, propylitized, and, to a lesser extent, silicified, pyrophyllitized, and argillicized andesitic pyroclastic rocks of the Bonanza Subgroup. Copper mineralization occurs in disseminations and small massive lenses.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet covering Expo 237-240, 657-699, and 471-487; induced polarization survey, 68 line-miles and magnetometer survey, 72 line-miles covering Expo 657-699 and 237-240; electromagnetic survey, 1 line-mile; road construction, .25 mile on Expo 237 and 238; surface diamond drilling, eight holes totalling 4,567 feet on Expo 217, 237, and 238 and Don 4 and 687.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 262; Assessment Reports 3400, 3402.

MOR (No. 49, Fig. E)

LOCATION: Lat. 50° 41.5′ Long. 127° 45.3′ (92L/12)
NANAIMO M.D. At approximately 800 feet elevation on Nahwitti River, 2 miles southwest of the west end of Kains Lake.

CLAIMS: MOR 1 to 38, ADD 1 to 5, WOB 1 to 58.

ACCESS: By logging road from Port Hardy, 15 miles.

OPERATOR: THE SWISS ALUMINIUM MINING CO. OF CANADA LTD., Box 835, Station A, Vancouver 1.

WORK DONE: Surface workings mapped; surface geological mapping, 1 inch equals 400 feet and geochemical soil survey, 200 samples covering all claims; trenching, 20,000 cubic yards on Add 1-3.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 264; Assessment Report 3086.

KW, H (No. 189, Fig. E)

LOCATION: Lat. 50° 38′ Long. 127° 50′ (92L/12W)
NANAIMO M.D. At elevations between sea-level and 1,900 feet on the north shore of Holberg Inlet, 7 miles southeast of Holberg.

CLAIMS: KW 11 to 16, 39 to 96, H 1 to 32.

ACCESS: By boat from Coal Harbour or Holberg, or by helicopter from Port Hardy.

OWNERS: D. K. BRAGG and VICTORIA BRAGG, 3567 West 27th Avenue, Vancouver 8.

METAL: Copper.

DESCRIPTION: Chalcopyrite is reported to occur as disseminations in Bonanza volcanic rocks.

WORK DONE: Geochemical soil sampling and geological mapping were done on KW 11-16, 39-45, 48, 50, 52, 54, 56, and H 11-32.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 259; Assessment Report 3233.

NORMAN (No. 41, Fig. E)

LOCATION: Lat. 50° 42.0′ Long. 127° 51.3′ (92L/12W)
NANAIMO M.D. South shore of Nahwitti Lake.

CLAIMS: NORMAN, HPH, SUN, RAIN, RAS, HSW, DOLLY, DIANE, totalling 109 (formerly SOUTH SHORE).

ACCESS: By gravel road from Port Hardy, 17 miles.

OPERATOR: GIANT EXPLORATIONS LIMITED, 1131 Melville Street, Vancouver 5.

METALS: Gold, silver, lead, zinc, copper.

WORK DONE: Induced polarization survey, 4 line-miles covering Norman 1 and 2.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 263; Assessment Report 3055.

HEP (No. 100, Fig. E)

LOCATION: Lat. 50° 41.6′ Long. 127° 53.5′ (92L/12W)
NANAIMO M.D. At approximately 1,500 feet elevation 1 mile southwest of the west end of Nahwitti Lake.

CLAIMS: HEP 1 to 101, HEP 1 Fraction.

ACCESS: By road from Port Hardy, 30 miles.

OWNER: UTAH MINES LTD., 412, 510 West Hastings Street, Vancouver 2.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite, molybdenite, and minor bornite occur within fractured pyropylitized and, to a lesser extent, silicified, pyrophyllitized, and argillicized andesitic pyroclastic rocks of the Bonanza Subgroup. Copper mineralization occurs in disseminations and molybdenite largely occurs in fractures.

WORK DONE: Induced polarization survey, 4 line-miles covering Hep 1, 2, 5, 6; magnetometer survey, 20 line-miles covering Hep 1-8, 19, 28, 29; electromagnetic survey, 2 line-miles covering Hep 1; road construction, .6 mile on Hep 1, 2, 5, 6; surface diamond drilling, four holes totalling 2,137 feet on Hep 1, 2, 5, 6.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 262; Assessment Report 3400.

JEAN, LAKE (No. 101, Fig. E)

LOCATION: Lat. 50° 42.7′ Long. 127° 56′ (92L/12W)
NANAIMO M.D. At approximately 1,000 feet elevation on the north side of Nahwitti Lake.

CLAIMS: JEAN 1 to 10, LAKE, LAKE 2 and 3, FTR 1 to 15 (formerly NORTH SHORE).

ACCESS: By road from Port Hardy, 24 miles.

OPERATOR: NIPPON MINING OF CANADA LTD., 607, 475 Howe Street, Vancouver 1.

METALS: Copper, iron, lead.

DESCRIPTION: The claims are located over basic volcanic rocks of the Karmutsen Formation and limestone of the Quatsino Formation. Most of the mineralization consists of chalcopyrite with lesser amounts of sphalerite and galena in skarn formed at limestone-volcanic rock contacts, in shear zones and apparently associated with dykes. Narrow veins containing sphalerite and galena are also reported in limestone.

WORK DONE: Surface diamond drilling, three holes totalling 1,200 feet on Jean 1-4.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1936, p. F51; 1968, p. 94.

BERG (No. 40, Fig. E)

LOCATION: Lat. 50° 42'-45' Long. 127° 56.5' - 128° 05' (92L/12W)
NANAIMO M.D. Twenty miles west of Port Hardy and 2.5 miles north of Holberg.

CLAIMS: BERG 1 to 178, B 1 and 2, 7 to 12.

ACCESS: By the Port Hardy-Holberg road.

OWNER: CONTINENTAL CINCH MINES LTD., 1790, 777 Hornby Street, Vancouver 1.

METALS: Minor copper and molybdenum.

DESCRIPTION: The claims lie along a west-northwest trending belt of Triassic volcanic and sedimentary rocks which are intruded by several small acid intrusive bodies.

WORK DONE: During the 1968 and 1969 field season the claim group was geologically mapped at a scale of 1 inch equals 500 feet followed by a detailed geochemical survey along a 200-foot by 100-foot grid in selected areas. In 1970, five men completed 16 line-miles of detailed soil sampling, 10 line-miles of detailed magnetometer surveying, and 22 soil profiles.

REFERENCES: Assessment Reports 1771, 2834.

MOUNT WADDINGTON 92N

CINDY (No. 146, Fig. E)

LOCATION: Lat. 51° 12.5'-15' Long. 124° 09.5'-11' (92N/1E)
CLINTON M.D. At approximately 4,500 feet elevation on the north shore of Franklyn Arm, 4 miles west of Chilko Lake.

CLAIMS: CINDY 16 to 41.

ACCESS: By Highway 20 and boat from Williams Lake, 160 miles.

OWNER: SHOREWEST MINING CO. LTD., 403, 717 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Diorite and granodiorite of the Coast Plutonic Complex intrude Triassic volcanic and sedimentary rocks. Copper occurs in limy units of sedimentary rock.
WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering Cindy 16-25; geochemical soil survey, 6,000 feet covering same claims; trenching, 75 feet on Cindy 16, 18-20.
REFERENCE: Assessment Report 3319.

NORFA (No. 191, Fig. E)

LOCATION: Lat. 51° 11.2′ Long. 124° 11.2′ (92N/1E)
CLINTON M.D. South of the west end of Franklyn Arm on Chilko Lake.
CLAIMS: NORFA 17 to 50, 66 to 77.
ACCESS: By floatplane from Vancouver.
OPERATOR: BEAUMONT RESOURCES LTD., 1790, 777 Hornby Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Copper and molybdenum mineralization occurs in hornfelsic argillite.
WORK DONE: Line-cutting and geological and geochemical surveys; 85 soil samples collected.
REFERENCE: Assessment Report 3271.

SG (No. 166, Fig. E)

LOCATION: Lat. 51° 00.0′ Long. 124° 21.0′ (92N/1W)
Report on this property in section 92K/16W.

VB (No. 42, Fig. E)

LOCATION: Lat. 51° 38.0′ Long. 125° 02.8′ (92N/11E)
CLINTON M.D. On the north side of Sand Creek, 17 miles southwest of Tatla Lake village.
CLAIMS: VB 1 to 73.
ACCESS: By helicopter from Williams Lake, 125 miles to the east.
OWNER: PACIFIC PETROLEUMS LTD., 408, 580 Granville Street, Vancouver 2.
METAL: Molybdenum.
DESCRIPTION: On VB 7 to 10 geological mapping has outlined a low-grade molybdenite deposit 1,500 feet long and 600 feet wide averaging 0.03 per cent molybdenite. The molybdenite occurs as micro-veinlets along joints and fractures and as disseminated grains in granitic rocks of the Coast Plutonic Complex.
WORK DONE: The claim group was geologically mapped on a scale of 1 inch equals 1,000 feet in 1970.
REFERENCE: Assessment Report 2942.

MOUNTAIN BOSS, MOUNTAIN KING (No. 147, Fig. E)

LOCATION: Lat. 51° 49.5' Long. 125° 04.8' (92N/14E) CARIBOO M.D. At approximately 7,000 feet elevation about 1.5 miles northeast of Perkins Peak, 22 miles west-southwest of Tatla Lake post office.
CLAIMS: BELCHOR 1 to 8 (Lots 1063 to 1070), BRITON (Lot 1062), IRON CROWN NO. 7 (Lot 1071), MONARCH (Lot 1076), HEATHER (Lot 1083), BLUE BELL (Lot 1084); APEX 1 to 54.
ACCESS: From Williams Lake-Bella Coola highway by mine road, 18 miles.
OWNER: Kleena Kleene Gold Mines Ltd.
OPERATOR: CHROMEX NICKEL MINES LTD., 1955 Creelman Avenue, Vancouver 9.
METAL: Gold.
WORK DONE: Road construction, 3 miles; stripping, 3 acres on Apex 3 and 4.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 202.

TASEKO LAKES 92O

W (No. 208, Fig. E)

LOCATION: Lat. 51° 09' Long. 122° 13.5' (92O/1E) CLINTON M.D. On the south side of Ward Creek, 8 miles above its confluence with the Fraser River.
CLAIMS: W 1 to 12.
ACCESS: By road from Clinton, approximately 40 miles.
OPERATOR: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, 555 Burrard Street, Vancouver 1.
METAL: Gold.
WORK DONE: Geochemical soil survey, approximately 280 samples covering all claims; percussion drilling, eight holes totalling 1,422 feet on W 1-3, 10 and 11.

COPPER, PM (No. 148, Fig. E)

LOCATION: Lat. 51° 08.2' Long. 122° 37.5' (92O/2E) LILLOOET and CLINTON M.D. At approximately 5,500 feet elevation on the west side of Poison Mountain.
CLAIMS: COPPER, PM, GIANT, OK, CHEAP, totalling 181.
ACCESS: By road north and west from Lillooet, 53 miles.
OPERATORS: HOMESTAKE MINERAL DEVELOPMENT COMPANY, Old National Bank Building, Spokane, Wash. 99201 and CANADIAN SUPERIOR EXPLORATION LIMITED, 1177 West Hastings Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Chalcopyrite and molybdenite occur in a porphyry type of deposit.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; magnetometer survey covering central portion of claims; percussion drilling, 43 holes totalling, 10,000 feet on central portion of claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 216.

SILVERQUICK MINE (No. 165, Fig. E)

By E. Sadar

LOCATION:	Lat. 51’ 02.5’ Long. 122° 49.0’ (92O/2W) LILLOOET M.D. At approximately 5,600 feet elevation 2 miles west-southwest of the junction of Relay and Tyaughton Creeks.
CLAIMS:	SILVERQUICK, QUICKSILVER, DOT, WOODS, MILLS, BOB, KIM, CAL, VON, GRACE, FAY, totalling 86.
ACCESS:	From the Lillooet-Bralorne road by 21 miles of road along Tyaughton Creek.
OWNER:	SILVERQUICK DEVELOPMENT CO. (B.C.) LTD., 8, 22374 Lougheed Highway, Maple Ridge.
METAL:	Mercury.
DESCRIPTION:	Most of the property is underlain by the Taylor Creek Group of Upper Jurassic (?) Lower Cretaceous age. The rocks are conglomerate and shale with conglomerate predominating. The conglomerate is composed mainly of chert and volcanic and quartzitic pebbles and cobbles. Beds of soft limonitic, easily weathered, muddy argillaceous rocks are present along the crest of the ridge above and to the south of the area called the mineralized zone. In the mineralized zone, they comprise about 30 per cent of the rocks.
WORK DONE:	Trenching, 1,900 feet on Silverquick and Silverquick 41 and 51; stripping, 182,000 square feet on Silverquick 41 and 51; surface diamond drilling, six holes totalling 1,200 feet on Silverquick.
REFERENCE:	*B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, pp. 186, 187.

A, B, C, X, Y, Z (No. 44, Fig. E)

LOCATION:	Lat. 51° 09.5’ Long. 122° 53.5’ (92O/2W) 51° 10.5’ 122° 56.5’ LILLOOET M.D. The property lies on Relay Creek and is split into two groups. The A, B, and C claims are centred 8.5 miles above Tyaughton Creek and the X, Y, and Z claims are centred 11 miles above Tyaughton Creek.
CLAIMS:	A, B, C, X, Y, Z, totalling 72.
ACCESS:	By the Lillooet-Bralorne and Tyaughton Creek roads, thence 20 miles up Tyaughton and Relay Creek by four-wheel-drive vehicle.
OWNER:	Sheba Syndicate.
OPERATORS:	HOME OIL COMPANY LIMITED, 202, 850 West Hastings Street, Vancouver 1 and UNITED STATES SMELTING AND REFINING COMPANY, 628, 470 Granville Street, Vancouver 2.
METALS:	Copper, molybdenum.
DESCRIPTION:	Minor chalcopyrite occurs in fracture fillings and traces of molybdenite occur interstitially in altered quartz-feldspar porphyry..
WORK DONE:	In 1970: reconnaissance geological mapping; geochemical soil survey, 1,380 samples. In 1971: surface geological mapping, 1 inch equals 1,000 feet covering Y 4, 6, 8 and Z 3-8; geochemical soil survey, 3 line-miles covering Z 3-5 and 7; trenching, approximately 600 feet.
REFERENCE:	Assessment Report 3179.

TRIGGER (No. 207, Fig. E)

LOCATION: Lat. 51° 00.3' Long. 123° 07.5' (92O/3E)
LILLOOET M.D. Between 6,500 and 7,000 feet elevation on Copper Creek, 20 miles up Gun Creek.

CLAIMS: TRIGGER, TRIGGER 2 to 4, MT 7 to 10, 13 to 15, 19, 20.

ACCESS: By helicopter from Gold Bridge, 17 miles.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Quartz, calcite, pyrite, chalcopyrite, and magnetite fill fractures in brecciated and fractured granodiorite. Local kaolinization is present.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 92 samples; induced polarization survey, 1 line-mile and electromagnetic survey, 5.9 line-miles covering Trigger and Trigger 2-4; surface diamond drilling, six holes totalling 4,436 feet on Trigger, Trigger 3 and 4, and MT 8.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 223.

MM (No. 150, Fig. E)

LOCATION: Lat. 51° 02.7' Long. 123° 17.8' (920/3W)
CLINTON M.D. At approximately 6,000 feet elevation at the confluence of Griswold Creek and Taseko River.

CLAIMS: RH 1 to 132.

ACCESS: By helicopter from Taseko Lakes, 10 miles.

OWNER: AMERICAN SMELTING AND REFINING COMPANY, 504, 535 Thurlow Street, Vancouver 5.

METAL: Copper.

DESCRIPTION: Pyrite and chalcopyrite occur in fracture planes in very weakly altered granodiorite.

WORK DONE: Surface geological mapping, 1 inch equals 500 feet covering RH 103-106 and 122-130.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1965, p. 142; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 214.

TEEK (No. 192, Fig. E)

LOCATION: Lat. 51° 06.5' Long. 123° 19.0' (92O/3W)
CLINTON M.D. Along the northern side of Taseko River between Battlement and Denain Creeks, 8 miles southeast of the south end of Taseko Lakes.

CLAIMS: TEEK 1 to 22.

ACCESS: By helicopter or road from Williams Lake, 167 miles.

OWNER: HAFUNO RESOURCES LTD., 1250, 505 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Minor copper mineralization occurs disseminated in granitic rocks on the southern part of the property.

WORK DONE: Geological mapping on Teek 1-4, 17, and 19-22.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 214; Assessment Report 3270.

ROWBOTTOM (No. 149, Fig. E)

LOCATION: Lat. 51° 02.5' Long. 123° 22.5' (92O/3W)
CLINTON M.D. At approximately 7,000 feet elevation at the head of Granite Creek, approximately 11 miles southeast of the south end of Taseko Lakes.

CLAIMS: BILL 1 to 18, NW 1 to 18.

ACCESS: By road west from Williams Lake, 170 miles.

OWNER: VICTOR MINING CORPORATION LTD., 818, 510 West Hastings Street, Vancouver 2.

METALS: Copper, molybdenum.

DESCRIPTION: This is a porphyry copper type of deposit.

WORK DONE: Surface geological mapping, 1 inch equals 300 feet covering Bill 1-12 and NW 1-12; road construction, 1.5 miles (centre of claim block); stripping, 500 feet on NW 5 and 7; percussion drilling, four holes totalling 1,140 feet on NW 7 and 8.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 214.

EGGS (No. 47, Fig. E)

LOCATION: Lat. 51° 10.5' Long. 123° 40.2' (92O/4E)
CLINTON M.D. On the Tchaikazan River, 4.5 miles west of upper Taseko Lake.

CLAIMS: EGGS, SUGAR, PORK, BEANS, ONION 1 to 3, A 1 to 20, WASH, CLEANUP, BEAR, GRIN, SAKES FR., HAM (Lots 7831 to 7836).

ACCESS: By floatplane or by four-wheel-drive vehicle over 142 miles of gravel and dirt road from Williams Lake.

OPERATOR: RIO TINTO CANADIAN EXPLORATION LIMITED, 615, 555 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

DESCRIPTION: The claims are underlain by black hornfels which is cut by dykes of porphyritic diorite, granodiorite, and feldspar porphyry. Copper-molybdenum mineralization occurs in fractures.

WORK DONE: Geochemical soil survey, 246 samples; induced polarization survey, approximately 13.5 line-miles; magnetometer survey, approximately 6 line-miles.

REFERENCES: *Minister of Mines, B.C.* Ann. Rept., 1968, p. 154; Assessment Reports 3131, 3507.

ML (No. 151, Fig. E)

LOCATION: Lat. 51° 35' Long. 122° 49.5' (92O/10W)
CLINTON M.D. At approximately 5,200 feet elevation about 13 miles southeast of Big Creek post office.

CLAIMS: ML, totalling 80.

ACCESS: By road from Williams Lake, 70 miles.
OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.
METAL: Copper.
DESCRIPTION: Disseminated chalcopyrite occurs in granodiorite.
WORK DONE: Road construction, 5 miles (from Willan Creek to drill site); surface diamond drilling, one hole totalling 302 feet on ML 141.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 215.

SUN, MIKE (No. 43, Fig. E)

LOCATION: Lat. 51° 36.5′-39′ Long. 123° 10′-19.5′ (92O/11)
CLINTON M.D. The property is centred on Bambrick Creek, 10 miles southwest of Big Creek post office.
CLAIMS: SUN 1 to 96, MIKE 1 to 96, MIKE 1 to 48.
ACCESS: From Big Creek by the Night Hawk Lodge road.
OPERATORS: NORTHWEST VENTURES LTD. and DAVENPORT OIL & MINING LTD. (formerly Kamloops Copper Consolidated Ltd., Midland Petroleums Ltd., and Consolidated Prudential Mines Ltd.), 9th Floor, 360 Bay Street, Toronto, Ont.
WORK DONE: Geochemical soil survey, 3,059 samples; ground magnetometer and induced polarization surveys, 176 line-miles, all in 1970.
REFERENCES: Assessment Reports 2964, 2965.

BONAPARTE RIVER 92P

JEFF, LA (No. 196, Fig. E)

LOCATION: Lat. 50° 57.4′ - 51° 01.5′ Long. 121° 24.2′-27.3′ (92P/3W)
Report on this property in section 92I/14W.

BILL (No. 193, Fig. E)

LOCATION: Lat. 51° 01.5′ Long. 121° 26′ (92P/3W)
CLINTON M.D. Approximately one-half mile south of the junction of Loon Creek and Wohlleben Creek, 20 miles north of Cache Creek.
CLAIMS: BILL 1 to 4, 1 Fraction.
OWNER: ALICE LAKE MINES LIMITED, 327, 736 Granville Street, Vancouver 2.
WORK DONE: Geochemical and electromagnetic surveys.
REFERENCE: Assessment Report 3307.

LUCKY (No. 152, Fig. E)

LOCATION: Lat. 51° 01.5′-04′ Long. 121° 31′-33.5′ (92P/4E)
CLINTON M.D. Between 3,000 and 4,000 feet elevation straddling Highway 97, 3 miles south of Clinton.

CLAIMS: LUCKY 1 to 14, KO 1 to 14, KIT 1 to 24.

ACCESS: By Highway 97.

OWNER: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary 1, Alta.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs in Cache Creek metamorphic rocks.

WORK DONE: Geochemical soil survey, 1,696 samples covering Lucky 1-14 and KO 1-14.

REFERENCE: Assessment Report 3330.

RON, DON **(No. 197, Fig. E)**

LOCATION: Lat. 51° 04'-05' Long. 121° 34.3'-36.3' (92P/4E)
CLINTON M.D. On Clinton Creek, immediately south of Clinton.

CLAIMS: RON 1 to 20, DON 1 to 31, CLIFFORD (Lot 4791), ADAB (Lot 4792).

ACCESS: By gravel road off Highway 97, south of Clinton.

OPERATOR: ACROLL OIL & GAS LTD., 574, Calgary Place One, 330 Fifth Avenue SW., Calgary 1, Alta.

DESCRIPTION: The claims are underlain by chert, argillites, altered volcanic rocks, and crystalline limestone of the Cache Creek Group.

WORK DONE: Magnetometer survey, 22 line-miles on Ron 1, 2, 4, 5, 19, 20 and Don 1-6, 19-23.

REFERENCE: Assessment Report 3405.

OWEN, ALAN **(No. 164, Fig. E)**

LOCATION: Lat. 51° 16'-21' Long. 121° 01.5'-04' (92P/6E)
CLINTON M.D. At approximately 3,800 feet elevation on the east side of Rayfield River, 15 miles east of 70 Mile House.

CLAIMS: OWEN 1 to 92, 125 to 129, ALAN 1 to 62.

ACCESS: By road from 70 Mile House, 30 miles.

OWNER: G. V. LLOYD, 703 Fifth Street SW., Calgary, Alta.

METAL: Copper.

DESCRIPTION: Scattered showings of chalcocite, bornite, chalcopyrite, malachite, and rare sphalerite occur in porphyritic hornblende syenite and related intrusions.

WORK DONE: Surface geological mapping, 1 inch equals 500 feet; geochemical soil survey, 1,507 samples; magnetometer survey, 53 line-miles.

REFERENCES: Assessment Reports 3478, 2379, 3618.

HAM **(No. 276, Fig. E)**

LOCATION: Lat. 51° 17' Long. 121° 14' (92P/6E)
CLINTON M.D. At approximately 3,500 feet elevation between Marsden and Hutchison Lakes, 8 miles east of 70 Mile House.

CLAIMS: HAM 1 to 56.

ACCESS: By road from 70 Mile House, 10 miles.

OWNER: BALFOUR MINING LTD., 205, 890 West Pender Street, Vancouver 1.

DESCRIPTION: Tertiary volcanic rocks are underlain by Jurassic granite intrusions.

WORK DONE: Geochemical soil survey, 12 line-miles covering all claims.

WL, TEEPEE (No. 153, Fig. E)

LOCATION: Lat. 51° 25.5'-28.5' Long. 120° 38'-41' (92P/7E)
CLINTON M.D. At approximately 4,000 feet elevation 3 miles southeast of Bridge Lake post office.

CLAIMS: WL 1 to 80, TEEPEE 1 to 4.

ACCESS: By road from Bridge Lake, 6 miles.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

METALS: Molybdenum, copper.

DESCRIPTION: Molybdenum and copper mineralization occurs in a shear zone in quartz diorite.

WORK DONE: Geological mapping, 1 inch equals 400 feet; geochemical soil survey, 800 samples; electromagnetic survey, 22 line-miles; and ground magnetometer survey, 22 line-miles covering all claims.

REFERENCE: Assessment Report 3601.

HIDDEN CREEK, CANYON (No. 246, Fig. E)

LOCATION: Lat. 51° 27.8' Long. 120° 16.4' (92P/8W)
KAMLOOPS M.D. At approximately 2,500 feet elevation 3.33 miles northwest of Little Fort.

CLAIMS: HIDDEN CREEK, CANYON.

ACCESS: By road from Little Fort, 7 miles.

OWNER: HOWARD HANSEN, Little Fort.

METALS: Copper, gold, silver.

WORK DONE: Trenching, 20 feet and stripping, 100 feet on Hidden Creek.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 313.

SUNSHINE (No. 155, Fig. E)

LOCATION: Lat. 51° 26.5' Long. 120° 21.5' (92P/8W)
KAMLOOPS M.D. At approximately 3,000 feet elevation on the south side of Eakin Creek, 7 miles west of Little Fort.

CLAIMS: SUNSHINE 1 to 10.

ACCESS: By road from Little Fort, 10 miles.

OWNER: NIPPON MINING OF CANADA LTD., 607, 475 Howe Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Copper is disseminated in quartz porphyry and granodiorite.

WORK DONE: Reconnaissance surface geological mapping; geochemical soil survey, 140 samples.

EC (No. 154, Fig. E)

LOCATION: Lat. 51° 29.5′ Long. 120° 26.5′ (92P/8W, 9W)
KAMLOOPS M.D. At approximately 4,300 feet elevation at the west end of Long Island (Janice) Lake, 11.5 miles west-northwest of Little Fort.

CLAIMS: EC, totalling eight.

ACCESS: By road from Little Fort, 20 miles.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

DESCRIPTION: An induced polarization anomaly along an intrusive contact was drilled.

WORK DONE: Surface diamond drilling, one hole totalling 201 feet on EC 53.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 166; Assessment Reports 1055, 1639.

LSD (No. 263, Fig. E)

LOCATION: Lat. 51° 37.8′ Long. 120° 00′ (92P/9E)
KAMLOOPS M.D. At approximately 2,000 feet elevation at Clearwater, on the south shore of the North Thompson River.

CLAIMS: LSD 1 to 15, SONJA 3.

ACCESS: By logging roads from Clearwater, 1 mile.

OWNER: TEXAL DEVELOPMENT LTD., 24, 640 Burrard Street, Vancouver 1.

METALS: Silver, lead, zinc, copper, gold.

DESCRIPTION: The property is underlain by the Upper Triassic Fennell Formation. This formation consists of pillow lavas, greenstone, quartz, quartz schist, argillite, chert, limestone, and minor amphibolite and breccia. The dominant rock appears to be quartz-sericite schist and argillite. Lead appears as galena and to a much lesser extent as anglesite and is associated with limonite and a quartz gangue.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet and geochemical soil survey, 8 line-miles covering all claims; trenching, 2,000 feet and stripping, 2,000 feet on LSD 1.

QUEEN BESS (No. 46, Fig. E)

LOCATION: Lat. 51° 32.8′ Long. 120° 08.2′ (92P/9E)
KAMLOOPS M.D. On Queen Bess Ridge, 8 miles south-southwest of Clearwater.

CLAIMS: IRON CLAD (Lot 289), LONE PROSPECTOR (Lot 289), BEAR 1, 4, 6, 8, BILL 1 to 6, 37 to 42, 52, 54, 56, PRINCE 2, 3, 5, 7.

ACCESS: By Highway 5 to Clearwater, across the Thompson River, and 11 miles southward on the Hallamore Lake road.

OWNER: JUNEX MINES LIMITED, 1710, One Bentall Centre, Vancouver 1.

METALS: Silver, lead, zinc.

DESCRIPTION: The claims are underlain by andesites of the Fennell Formation. Galena and sphalerite occur along wide shear zones within the andesites.

WORK DONE: Detailed geological mapping and geochemical soil sampling.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1951, pp. 125-128; *Geol. Surv., Canada,* Sum. Rept., 1930, Pt. A, pp. 140-143; Assessment Reports 2443, 3112.

SILVER (No. 194, Fig. E)

LOCATION: Lat. 51° 31.8' Long. 120° 22.1' (92P/9W)
KAMLOOPS M.D. Between elevations of 4,500 and 4,800 feet immediately south of Deer Lake, 14 miles northwest of Little Fort.
CLAIMS: SILVER, MAY, SP, UNITED, BILL, totalling 59.
ACCESS: By 6 miles of logging road north from Highway 24, 9.5 miles west of Little Fort.
OWNER: UNITED COPPER CORPORATION LIMITED, 1800, One Bentall Centre, Vancouver 1.
METALS: Gold, copper.
WORK DONE: Line-cutting and a magnetometer survey were done on United 2-5.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 312; Assessment Report 3349.

CARIB (No. 45, Fig. E)

LOCATION: Lat. 51° 32.0' Long. 121° 03.5' (92P/11E)
CLINTON M.D. Immediately south of Hartwig Lake, 12.5 miles southeast of 100 Mile House.
CLAIMS: CARIB 1 to 16.
ACCESS: Highway 24 crosses the northern part of the property, 6 miles east of Lone Butte.
OWNER: P. E. HIRST, c/o 1645, 555 Burrard Street, Vancouver 1.
WORK DONE: Geochemical and induced polarization surveys were made in 1970 on Carib 2, 4, 7, and 9.
REFERENCE: Assessment Report 3040.

FG (No. 157, Fig. E)

LOCATION: Lat. 51° 46.5' Long. 121° 04' (92P/14E)
CLINTON M.D. At approximately 3,000 feet elevation immediately east of Forest Grove, 12 miles northeast of 100 Mile House.
CLAIMS: FG, totalling 5.
ACCESS: By highway from 100 Mile House, 14 miles.
OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.
WORK DONE: Surface diamond drilling, one hole totalling 179 feet on FG 17.

STAN (No. 209, Fig. E)

LOCATION: Lat. 51° 47.5' Long. 121° 10.5' (92P/14E)
CLINTON M.D. Between 3,000 and 3,500 feet elevation 11 miles north-northeast of 100 Mile HOuse.
CLAIMS: STAN, MAC, SKULL, BRETT, FIR, totalling 55.
ACCESS: By road 8 miles east of Mile 111 on Highway 97.
OWNER: CANWAY EXPLORATIONS LTD., 12041 – 56th Avenue, Surrey.
METALS: Copper, molybdenum.
WORK DONE: Trenching, 4,500 square feet on Stan 3.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 184.

SL (No. 158, Fig. E)

LOCATION: Lat. 51° 48′ Long. 121° 14.5′ (92P/14E)
CLINTON M.D. At approximately 3,000 feet elevation west of Spring Lake, 2 miles south of Timothy Lake.
CLAIMS: SL 1 to 4, 13 to 16.
ACCESS: By road from 100 Mile House, 18 miles.
OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.
WORK DONE: Surface diamond drilling, one hole totalling 220 feet on SL 2.
REFERENCES: Assessment Reports 1834, 2378.

RA (No. 160, Fig. E)

LOCATION: Lat. 51° 59′ - 52′ 00.5′ Long. 121° 11′-18′ (92P/14)
CLINTON and CARIBOO M.D. At approximately 3,000 feet elevation from 2 to 6 miles east of Spout Lake.
CLAIMS: RA, totalling 137.
ACCESS: By road from 100 Mile House, 40 miles.
OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, 5, 465 Victoria Street, Kamloops.
METAL: Copper.
DESCRIPTION: Chalcopyrite and bornite occur disseminated in volcanic rocks.
WORK DONE: Geochemical soil and silt survey, 70 line-miles covering all claims; induced polarization survey covering central portion of claim group.

WC (No. 159, Fig. E)

LOCATION: Lat. 51° 56.5′ - 52° 01′ Long. 121° 20′-25′ (92P/14W)
CLINTON and CARIBOO M.D. At approximately 3,500 feet elevation immediately south of Spout Lake, 12 miles north-northeast of Lac la Hache.
CLAIMS: WC 1 to 178.
ACCESS: By secondary road from Lac la Hache, 14 miles.
OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.
METAL: Copper.
DESCRIPTION: Chalcopyrite disseminations occur in micromonzonite with chalcopyrite-magnetite replacement veins accompanied by epidote-tourmaline-calcite-K-feldspar alteration of the micromonzonite stock and intruded Nicola basalts and siltstone.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet; geochemical soil survey, 630 samples; and ground magnetometer survey, 26.5 line-miles covering WC 1-54; road construction, 2 miles (south of Spout Lake); trenching, 1,200 feet on WC 24, 26, 37, and 39.
REFERENCE: Assessment Report 3690.

R (No. 163, Fig. E)

LOCATION: Lat. 51° 56.5′-58′ Long. 121° 25.5′-28′ (92P/14W)
CLINTON M.D. At approximately 2,500 feet elevation immediately northeast of Rail Lake, 10 miles north of Lac la Hache.
CLAIMS: R 1 to 40.
ACCESS: By Rail Lake road from Lac la Hache, 15 miles.
OWNER: Helicon Explorations Limited.
OPERATOR: CARIBOU SYNDICATE, 145 East 15th Street, North Vancouver.
WORK DONE: Induced polarization and ground magnetometer surveys; road construction, 2 miles; percussion drilling, two holes totalling 670 feet.

HOOD (No. 156, Fig. E)

LOCATION: Lat. 51° 47.5′ Long. 120° 32′ (92P/15E)
KAMLOOPS and LILLOOET M.D. About 7 miles southeast of the east end of Canim Lake, 35 miles east-northeast of 100 Mile House.
CLAIMS: HOOD 1 to 72.
ACCESS: By road from 100 Mile House, 47 miles.
OWNER: KENNCO EXPLORATIONS, (WESTERN) LIMITED, 730, 505 Burrard Street, Vancouver 1.
METALS: Copper, molybdenum.
DESCRIPTION: Disseminated pyrrhotite, pyrite, chalcopyrite, and molybdenite occur in a dioritic border phase of a differentiated intrusive complex.
WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering all claims; gecchemical soil survey, 3.7 line-miles covering Hood 13-23, 43, and 50; induced polarization survey, 1.85 line-miles covering Hood 14, 16, 18, 19, 21, 13, and 50.

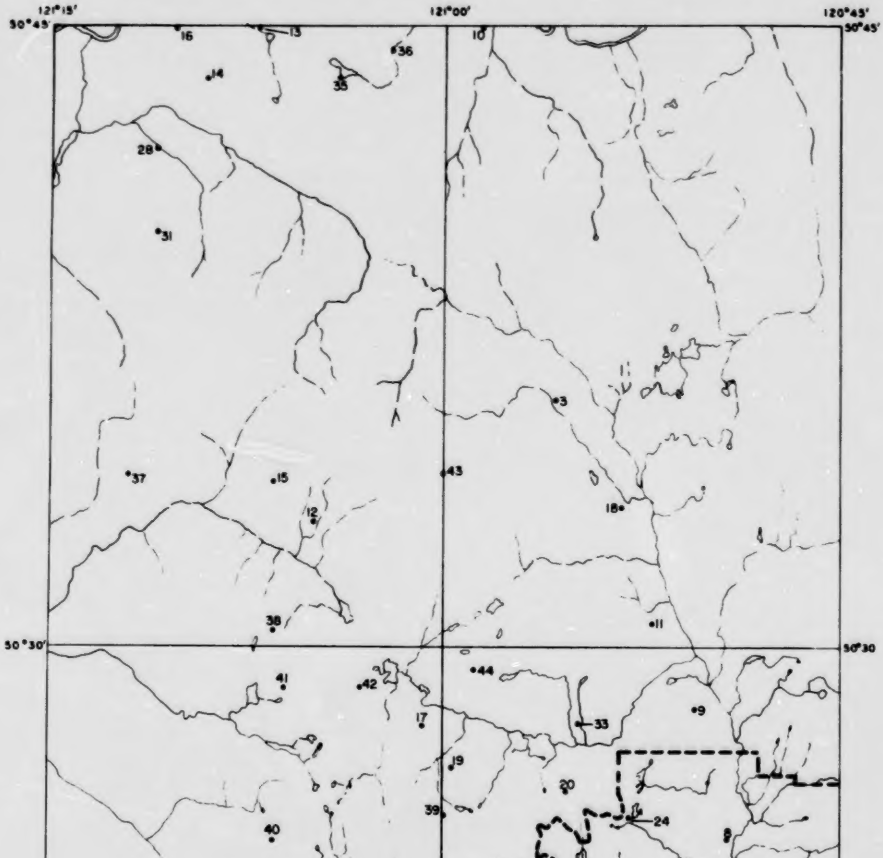
NOD (No. 210, Fig. E)

LOCATION: Lat. 51° 54.5′ Long. 120° 55.5′ (92P/15W)
CLINTON M.D. At approximately 3,000 feet elevation adjacent to the north end of Roger Lake, 4 miles northwest of Eagle Creek post office.
CLAIMS: NOD 1 to 20.
ACCESS: By road and trail from Eagle Creek, approximately 4 miles.
OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.
METAL: Copper.
DESCRIPTION: Minor disseminated pyrite and chalcopyrite occur in granodiorite at a contact between Nicola (?) volcanic rocks and the Takomkane batholith.
WORK DONE: Preliminary geochemical soil survey, 10 line-miles covering Nod 1-20.

CS (No. 162, Fig. E)

LOCATION: Lat. 51° 47.5′ Long. 120° 25′ (92P/16W)
KAMLOOPS M.D. At approximately 4,500 feet elevation immediately southwest of Sicily Lake, 10 miles northwest of Clearwater.

CLAIMS: CS, totalling 25.
ACCESS: By road from Clearwater, 25 miles.
OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, 5, 465 Victoria Street, Kamloops.
METAL: Molybdenum.
DESCRIPTION: Molybdenite occurs in quartz stringers in altered quartz diorite.
WORK DONE: Surface diamond drilling, three holes totalling 1,000 feet on CS 20, 26, and 40 Fraction.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 303.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7
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34
26
5
1
2
Scale
0
5
10
Miles
Scale
0
10
20
Kilometres

Figure F. Index map of mining properties in Highland Valley (NTS 92I/6E, 7W, 10W, 11E).

KEY TO PROPERTIES ON INDEX MAP, FIGURE F.

1. PH, page 340.
2. GO, page 346.
3. FOR, page 358.
4. BIN, page 341.
5. TN, TAN, page 341.
6. ALAMO, page 344.
7. IT, page 345.
8. MLM, GCM, page 345.
9. WENDY, JEAN, page 346.
10. LUCKY STRIKE, page 358.
11. XY, page 358.
12. FEED, page 360.
13. KEV, page 360.
14. SAGE, page 361.
15. MB, page 361.
16. PYRITE, page 362.
17. LORNEX, page 340.
18. RM, page 358.
19. SHEBA, page 348.
20. JERICHO, GAZA, page 348.
21. CHATAWAY, page 369.
22. CHATAWAY (BETHLEHEM COPPER OPTION), page 347.
23. CHATAWAY (CANADIAN SUPERIOR OPTION), page 347.
24. ACB, PRICE, CN, page 347.
25. ROB, ORO, page 357.
26. SUNSHINE, LO, LEE, page 344.
27. BON, page 345.
28. KEEF, page 361.
29. NB, HK, page 342.
30. TAM, BEN, page 343.
31. HY, page 362.
32. ROY, page 342.
33. ROY, page 348.
34. ABERDEEN, page 346.
35. AUDREY, page 360.
36. CHIEF, GEO, page 359.
37. KELLY, PAT, FOX, page 362.
38. TAM, KAM, JAC, page 342.
39. AM, IDE, PEN (HIGHMONT), page 344.
40. LAKE, LAKEN, page 343.
41. OK (ALWIN), page 342.
42. VALLEY COPPER, page 341.
43. KRAIN, page 359.
44. BETHLEHEM MINE, page 357.

HIGHLAND VALLEY
(NTS Divisions 92I/6E, 7W, 10W, 11E Figure F)

PH (No. 1, Fig. F)

LOCATION: Lat. 50° 15'-16.7' Long. 121° 00'-02.5' (92I/6E)
KAMLOOPS M.D. On Abbott Creek, 1.5 miles southwest of Abbott Lake and 13 miles northwest of Merritt.

CLAIMS: PH 1 to 56, 59, 61.

ACCESS: Via 3 miles of secondary dirt roads from the Spences Bridge-Merritt highway.

OPERATOR: AMBER RESOURCES LIMITED, 613, 837 West Hastings Street, Vancouver 1.

DESCRIPTION: The property lies near the southern end of the Guichon Creek batholith and is overlain in part by volcanic and/or sedimentary rocks of the Spences Bridge Group.

WORK DONE: A geochemical survey was done covering 30 line-miles in 1970.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 347; Assessment Reports 2270 (line-cutting), 2920.

LORNEX (No. 17, Fig. F)

LOCATION: Lat. 50° 28' Long. 121° 01' (92I/6E)
KAMLOOPS M.D. Between 4,000 and 5,000 feet elevation in Highland Valley, 2 miles south of Quiltanton Lake.

CLAIMS: Mineral leases M-48 to M-145 and other claims, totalling approximately 200, of which the key claims are the LORNEX 1 Fraction, AM 41, AWARD 38 to 41, 43, and 1 to 5 Fractions, and SKEENA COPPER 15, 16, 19, 21.

ACCESS: By road from Ashcroft, 32 miles.

OWNER: LORNEX MINING CORPORATION LTD., 202, 580 Granville Street, Vancouver 2.

METALS: Copper, molybdenum.

DESCRIPTION: Porphyry copper mineralization occurs along and east of a contact of Bethsaida granodiorite with Skeena quartz diorite. Ore minerals are molybdenite, bornite, and chalcopyrite. Sericite, chlorite, clay minerals, and epidote formed during alteration of the host rocks.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering Lornex 142 Fraction, Skeena Copper 4, 15, 16, 19, 21, and Award 40, 42, and Award 1 Fraction; road construction, 1 mile; surface diamond drilling, 17 holes totalling 7,280 feet on Skeena Copper 16, 19, 21, Apex 74, and Apex 90 Fraction. During 1971 excavation on the Lornex orebody, preparatory to production, involved the removal of 510,000 tons of ore and 33,053,000 tons of waste. Concurrently the construction of a 38,000-ton-per-day concentrator and auxiliary facilities was in progress.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 344.

BIN (No. 4, Fig. F)

LOCATION: Lat. 50° 20'-21' Long. 121° 01'-03' (92I/6E)
KAMLOOPS M.D. At elevations of 4,000 to 4,500 feet on Skuhost Creek, 14 miles southeast of Spences Bridge.
CLAIMS: BIN, CU, totalling 73 claims and 4 fractions.
ACCESS: Via the Skuhun Creek road from Spences Bridge.
OPERATOR: ARLINGTON SILVER MINES LTD., 1110, 505 Burrard Street, Vancouver 1.
DESCRIPTION: The claims are underlain by the Highland Valley, Bethsaida, and Skeena phases of the Guichon Creek batholith.
WORK DONE: Magnetometer survey on Bin 31-37, 42-45 and Cu 1-7, 16.1 line-miles.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 332 (No. 62); Assessment Reports 2085, 2086, 3181.

TN, TAN (No. 5, Fig. F)

LOCATION: Lat. 50° 16.4' Long. 121° 02.8' (92I/6E)
KAMLOOPS M.D. At elevations of 4,000 to 4,700 feet on Skuhun Creek, 4 miles northeast of Dot.
CLAIMS: TN, TAN, TAR, totalling approximately 30.
ACCESS: Via the Merritt-Spences Bridge highway and dirt road.
OWNER: CROYDON MINES LTD., 1177 West Hastings Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The property is underlain by the Hybrid quartz diorite phase of the Guichon Creek batholith.
WORK DONE: Geochemical and magnetometer surveys on Tan 14, 16, and 18.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 266; Assessment Reports 2058, 2629, 3116.

VALLEY COPPER (No. 42, Fig. F)

By David Smith

LOCATION: Lat. 50° 29' Long. 121° 03' (92I/6E)
KAMLOOPS M.D. West and southwest of Quiltanton Lake, at approximately 4,000 feet elevation.
CLAIMS: HH, AL, DF, GRR, MD, LTK, totalling 15 and 300 claims in three other groups.
ACCESS: On the Highland Valley highway, 25 miles southeast of Ashcroft.
OWNER: Valley Copper Mines Limited.
OPERATOR: COMINCO LTD., 1155 West Georgia Street, Vancouver 5.
METALS: Copper, molybdenum.
WORK DONE: Feasibility studies were carried out.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 354-369.

NB, HK (No. 29, Fig. F)

LOCATION: Lat. 50° 20.5′-23.5′ Long. 121° 03.4′-06.5′ (92I/6E)
KAMLOOPS M.D. West of Skuhost Creek and approximately 1.5 miles south of Pimainus Lake, 11 miles southeast of Spences Bridge.
CLAIMS: NB 1 to 36, HK 11 to 16.
ACCESS: Via the Skuhun Creek road and logging road.
OWNER: HIGHLAND STAR MINES LIMITED, 470 Vienna Crescent, North Vancouver.
WORK DONE: Geochemical survey, 346 samples collected.
REFERENCE: Assessment Report 3377.

ROY (No. 32, Fig. F)

LOCATION: Lat. 50° 24′ Long. 121° 03.5′ (92I/6E)
KAMLOOPS M.D. One-half mile east of Pimainus Lake.
CLAIMS: ROY 1 to 6, ROY 1 Fraction.
OWNER: ALAKON METALS LTD., 202, 569 Howe Street, Vancouver 1.
WORK DONE: Geochemical survey covering all claims.
REFERENCE: Assessment Report 3452.

TAM, KAM, JAC (No. 38, Fig. F)

LOCATION: Lat. 50° 29.3′-31.6′ Long. 121° 05′-09′ (92I/6E, 11E)
KAMLOOPS M.D. Between 4,000 and 5,500 feet elevation west of Indian Reserve 12 and north of Island Lake, 5 miles west of the Bethlehem property.
CLAIMS: TAM, KAM, JAC, MER, etc., totalling 88.
ACCESS: By road from Ashcroft, 30 miles.
OWNER: Cleveland Mining & Smelting Co. Ltd.
OPERATOR: KALCO VALLEY MINES LTD., 207, 470 Granville Street, Vancouver 2.
METALS: Copper, molybdenum.
WORK DONE: Percussion drilling, four holes totalling approximately 400 feet on Mer 5 and 6.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 351.

OK (ALWIN) (No. 41, Fig. F)

By David Smith

LOCATION: Lat. 50° 29′ Long. 121° 06′ (92I/6E)
KAMLOOPS M.D. At approximately 5,400 feet elevation, 3 miles west-southwest of Quiltanton Lake.
CLAIMS: OK (Lot 3644), APEX (Lot 3645), IOU (Lot 3643), EZZ 12, 14, 19 to 22, OK 5 to 10, PAL 1, 1 to 3 Fractions, CALL 1 to 4, ALWIN 1 and 2 Fractions, FBI Fraction.

ACCESS: By highway, 25 miles from Ashcroft and then 5 miles of gravel road.
OPERATOR: OK SYNDICATE (Alwin Mining Co. Ltd., D K Mining Ltd., and International Minerals & Chemicals Corp.), Box 699, Ashcroft.
METALS: Copper, silver.
WORK DONE:

A decline was driven from surface 1,365 feet to the main haulage drift. The haulage drift was slashed for 2,100 feet to a size capable of handling trucks. Further access drifting totalled 1,236 feet. Development drifting on ore totalled 1,861 feet. Two raises were driven totalling 319 feet.

Mining is to be done on a modified sublevel caving method.

In 1971 construction of a 500-ton-per-day concentrator was started and was 80 per cent completed at year end.

It is expected that permanent crews will commute from Ashcroft.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 346.

LAKE, LAKEN (No. 40, Fig. F)

LOCATION: Lat. 50° 25.5′ Long. 121° 06.5′ (92I/6E)
KAMLOOPS M.D. At approximately 5,000 feet elevation north, south, and west of the west end of Pimainus Lake.
CLAIMS: LAKE 1 to 10, LAKEN 1 to 16, SNO 1 to 9, PM 1 to 6, PIM 1 and 2 Fractions, PIM 7 to 20, IL 1 and 2 Fractions, IL 3 to 6, PLES 1 to 3 Fractions, SPOT 1 and 2, OVERSIGHT 1 and 2.
ACCESS: By gravel road from the Highland Valley highway, 10 miles.
OWNER: Decca Resources Limited.
OPERATOR: KEEVIL MINING GROUP LIMITED, 700, 1177 West Hastings Street, Vancouver 1.
METALS: Copper, molybdenum.
WORK DONE: Geochemical soil survey covering Lake and Sno claims; electromagnetic and seismic survey, 9.5 line-miles covering Lake claims.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 342; Assessment Report 3053.

TAM, BEN (No. 30, Fig. F)

LOCATION: Lat. 50° 19′-24.5′ Long. 121° 05′-09.5′ (92I/6E)
KAMLOOPS M.D. North of Papsilqua Creek, 5 miles northeast of Clapperton.
CLAIMS: TAM, BEN, KEY, MERU, CHIEF, WHY, A, B, DATSUN, etc., totalling 243.
ACCESS: By Calling Lake road from Highland Valley highway, 10 miles.
OWNER: HIGHLAND CHIEF MINES LTD., 575 Howe Street, Vancouver 1.
METALS: Copper, molybdenum.

WORK DONE: An electromagnetic survey covering 60,000 line-feet was done on Ben 13-29, 37-40 during 1970.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 351; Assessment Report 3322.

ALAMO (No. 6, Fig. F)

LOCATION: Lat. 50° 21.5′ Long. 121° 00.5′ (92I/6E, 7W)
KAMLOOPS M.D. Northeast of the junction of Skuhun and Skuhost Creeks at an elevation of 5,000 feet.

CLAIMS: ALAMO, SAN JOSE, totalling 45.

ACCESS: Via the Merritt-Spences Bridge highway and Skuhun Creek road.

OWNER: SAN JACINTO EXPLORATIONS LIMITED, 3513 West 31st Avenue, Vancouver 8.

METAL: Copper.

DESCRIPTION: Malachite occurs along shallow-dipping fractures in one trench.

WORK DONE: Line-cutting on Alamo 1-6 and Alamo 1 and 2 Fractions.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 242; 1970, p. 330; Assessment Reports 1828, 2327, 3076.

AM, IDE, PEN (HIGHMONT) (No. 39, Fig. F)

David Smith

LOCATION: Lat. 50° 24.5′-26.5′ Long. 120° 58′ - 121° 02′ (92I/6E, 7W)
KAMLOOPS M.D. At approximately 5,400 feet elevation on the northwest slope of Gnawed Mountain.

CLAIMS: AM, IDE, PEN, NEW IDE, ANN, NEW ANN, PHYLLIS, KEN, NEW KEN.

ACCESS: By Highland Valley highway and gravel road from Ashcroft, 35 miles.

OWNERS: TECK CORPORATION LTD., 700, 1177 West Hastings Street, Vancouver 1 and HIGHMONT MINING CORP. LTD., 812, 1177 West Hastings Street, Vancouver 1 or Box 700, Ashcroft.

METALS: Copper, molybdenum.

WORK DONE: Geochemical soil survey, 800 samples covering Ken and New Ken; induced polarization survey, 10 line-miles covering AM and IDE; trenching and clearing for proposed plant site; feasibility studies.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 330; Assessment Report 2901.

SUNSHINE, LO, LEE (No. 26, Fig. F)

LOCATION: Lat. 50° 16.8′-19.7′ Long. 120° 43.6′-49.2′ (92I/7)
NICOLA M.D. At the headwaters of Tolman Creek, 4 miles south-southeast of Mamit Lake.

CLAIMS: SUNSHINE 1 to 16, LO 6, 7, 9 to 16, LEE 1 to 40, FRIDAY 1 to 13, ELVA 1 to 3, PATTI 1 to 10, SATURDAY 1 to 17, TRISH 1 to 8, WET 1 and 2.

ACCESS: By paved highway from Merritt, 16 miles west.
OWNER: HIGHLAND LODE MINES LTD., 728, 510 West Hastings Street, Vancouver 2.
METALS: Copper, silver, lead, zinc.
DESCRIPTION: Galena, sphalerite, and some chalcopyrite occur in quartz-carbonate veins in sheared Nicola volcanic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 40 feet; underground diamond drilling, three holes totalling 450 feet.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 269; Assessment Report 2970.

IT (No. 7, Fig. F)

LOCATION: Lat. 50° 20'-20.8' Long. 120° 44.5'-46.5' (92I/7)
NICOLA M.D. Sixteen miles north of Merritt and 2.5 miles southeast of Mamit Lake.
CLAIMS: IT 1 to 40.
ACCESS: Via secondary roads from Merritt, 16 miles.
OWNER: SIGNAL HOLDINGS LTD., 450, 890 West Pender Street, Vancouver 1.
WORK DONE: Line-cutting.
REFERENCE: Assessment Report 2921.

BON (No. 27, Fig. F)

LOCATION: Lat. 50° 23.5'-25' Long. 120° 45'-48' (92I/7W)
NICOLA M.D. Two miles east-northeast of Mamit Lake.
CLAIMS: BON 1 to 43.
ACCESS: By road from Merritt, 23 miles.
OWNER: BONNEVILLE DEVELOPMENTS LTD., 1116, 736 Granville Street, Vancouver 2.
DESCRIPTION: Mainly Nicola greenstone and tuffs.
WORK DONE: Surface geological mapping.

MLM, GCM (No. 8, Fig. F)

LOCATION: Lat. 50° 23.4'-28' Long. 120° 48'-51' (92I/7W)
NICOLA M.D. Immediately west of the northern end of Mamit Lake and extending 4 miles north of Mamit Lake, 18 miles north of Merritt.
CLAIMS: MLM, GCM, totalling approximately 140.
ACCESS: Via highway and secondary road from Merritt, 18 miles.
OWNER: MAMIT LAKE MINING LTD., 303, 550 Burrard Street, Vancouver 1.
METAL: Copper.
WORK DONE: Magnetometer survey on MLM 3-10; electromagnetic and magnetometer surveys on the eastern and northern sections of the property; geochemical survey.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 370; Assessment Reports 2899, 2981, 2982, 2983, 3381, 3588, 3589.

WENDY, JEAN (No. 9, Fig. F)

LOCATION: Lat. 50° 27'-30' Long. 120° 48'-53.6' (92I/7W)
KAMLOOPS M.D. On the west side of the Guichon Creek valley and north of Gump Lake.

CLAIMS: WENDY, JEAN, BRUCE, FALL, COPPER, totalling 58.

ACCESS: Via secondary road from Merritt, approximately 25 miles.

OPERATOR: R. J. BILLINGSLEY, 2356 West Eighth Avenue, Vancouver 9.

METAL: Copper.

DESCRIPTION: The claims are underlain by intrusive rocks of the Hybrid phase of the Guichon Creek batholith. Minor chalcopyrite and malachite occur on the Wendy 16 claim.

WORK DONE: Photogeological survey of Wendy 1-34.

REFERENCE: Assessment Report 3185.

GO (No. 2, Fig. F)

LOCATION: Lat. 50° 15' Long. 120° 50.5' (92I/7W)
NICOLA M.D. East side of Guichon Creek just north of the mouth of Steffens Creek, 10 miles north-northwest of Merritt.

CLAIMS: GO 1 to 16, LOST 1 to 32.

ACCESS: Via all-weather road from Merritt.

OWNERS: L. and G. OLHEISER, 128, 696 West 45th Avenue, Vancouver 13.

WORK DONE: An electromagnetic survey and a geochemical survey were done on the Go claims in 1970. The surveys were extended over the Lost claims during 1971.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 372; Assessment Reports 3038, 3134.

ABERDEEN (No. 34, Fig. F)

LOCATION: Lat. 50° 18' Long. 120° 51.4' (92I/7W)
NICOLA M.D. South side of Broom Creek, from 1 to 3 miles northwest of Guichon Creek.

CLAIMS: ABERDEEN (Lot 960), CROWN 1 to 10, 12 to 29, 31, 33 to 35, 37, 39, and 1 to 3 Fractions.

ACCESS: By road from Merritt, 16 miles.

OWNER: TORWEST RESOURCES (1962) LTD., 700, 1177 West Hastings Street, Vancouver 1; field office, Box 578, Merritt.

METAL: Copper.

DESCRIPTION: Low-grade copper mineralization occurs with feldspar and chloritic alteration in granodiorite.

WORK DONE: Geochemical survey, 19 line-miles covering the Aberdeen and Crown claims; surface diamond drilling, one hole totalling 50 feet.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 269; Assessment Report 3454.

*CHATAWAY (BETHLEHEM COPPER OPTION) (No. 22, Fig. F)

LOCATION: Lat. 50° 18′-20.5′ Long. 120° 49′-54′ (92I/7W)
KAMLOOPS M.D. Between Broom Creek and Guichon Creek.

CLAIMS: WIZ 12 to 31, 42 to 52, 54 to 71, 88 to 123, GEE, INS, LV, PAL, REX, SHO, totalling 110.

ACCESS: By road from Merritt, 11 miles.

OWNER: Chataway Exploration Co. Ltd.

OPERATOR: BETHLEHEM COPPER CORPORATION LTD., 1818, 355 Burrard Street, Vancouver 1.

METALS: Copper, molybdenum.

WORK DONE: Surface geological mapping; percussion drilling, 6,000 feet.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 371.

*CHATAWAY (CANADIAN SUPERIOR OPTION) (No. 23, Fig. F)

LOCATION: Lat. 50° 20.5′-23.5′ Long. 120° 50′-54′ (92I/7W)
KAMLOOPS and NICOLA M.D. At approximately 5,000 feet elevation surrounding Dot, Chataway, and Antler Lakes.

CLAIMS: B, CHAT, LEN, ROB, RUSS, ROSE, TDM, WIZ, ANT, CU, DOT, GAV, HOR, LAKE, MAR, REX, totalling 155.

ACCESS: By road from Merritt, 25 miles.

OWNER: Chataway Exploration Co. Ltd.

OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 5, 465 Victoria Street, Kamloops.

METALS: Copper, molybdenum.

DESCRIPTION: Chalcopyrite, bornite, and molybdenite occur in sericitic alteration zones in granodiorite.

WORK DONE: Induced polarization survey.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 371; Assessment Report 3552.

ACB, PRICE, CN (No. 24, Fig. F)

LOCATION: Lat. 50° 26.2′ Long. 120° 52.8′ (92I/7W)
KAMLOOPS and NICOLA M.D. At approximately 4,000 feet elevation at Tupper Lake, east of Gnawed Mountain.

CLAIMS: ACB 1 to 12; PRICE 39 to 46, 77 to 86, 195 to 200, 505; PRICE 511, 512, 514, 518, 520 Fractions; CN 3; JOE 1 and 2.

ACCESS: By road from Ashcroft-Mamit road, 3 miles.

OWNER: ORO MINES LTD., 707, 475 Howe Street, Vancouver 1.

METALS: Molybdenum, copper.

DESCRIPTION: The property is underlain by intrusive rocks of the Jurassic Guichon Creek batholith near the contact with Triassic Nicola volcanic and sedimentary rocks.

WORK DONE: Geochemical survey, 4 line-miles covering ACB 1, 4 to 8; magnetometer survey, 4 line-miles covering same claims; road construction, one-half mile at south end of Tupper Lake going due east; trenching on Price 195 and 196 claims.

*NOTE: CHATAWAY (CHATAWAY EXPLORATION CO. LTD.), *see page* 369.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 242; Assessment Reports 160, 3496.

JERICHO, GAZA (No. 20, Fig. F)

LOCATION: Lat. 50° 26'-27' Long. 120° 54'-57' (92I/7W)
KAMLOOPS M.D. At 5,000 feet elevation southwest of Indian Reserve 15.

CLAIMS: JERICHO, BOB, GEM, STIBBARD, JC, MARK, NAT, GAP, FARGO, BUD, HATCH, JAMES, JIM, GNAT.

ACCESS: From Highland Valley highway 7 miles east of Quiltanton Lake, a branch road leads south to the property.

OWNERS: Jericho Mines Ltd. and Gaza Mines Ltd.

OPERATORS: TECK CORPORATION LTD., 700, 1177 West Hastings Street, Vancouver 1 and HIGHMONT MINING CORP. LTD., 812, 1177 West Hastings Street, Vancouver 1 or Box 700, Ashcroft.

METAL: Copper.

WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet; road construction, 18 miles on Jericho ground; trenching, 500 feet on Bob claims and some on Stibbard; surface diamond drilling, four holes totalling 400 feet on JC 1 and Stibbard 4 and 5 and eight holes totalling 4,150 feet on IDE, Hatch, and Bob claims; percussion drilling, 20 holes totalling 5,000 feet on Nat and Bob claims and four holes totalling 1,820 feet on JC and Hatch claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 253.

ROY (No. 33, Fig. F)

LOCATION: Lat. 50° 28' Long. 120° 55' (92I/7W)
KAMLOOPS M.D. On the north side of Witches Brook, immediately north of Indian Reserve 15.

CLAIMS: ROY 7 to 14.

OWNER: ALAKON METALS LTD., 202, 569 Howe Street, Vancouver 1.

WORK DONE: Geochemical survey.

REFERENCE: Assessment Report 3452.

SHEBA (No. 19, Fig. F)

By W. J. McMillan

LOCATION: Lat. 50° 26.5'-27.5' Long. 120° 57.5'-59.5' (92I/7W)
KAMLOOPS M.D. Between 4,000 and 5,500 feet elevation mainly on the east and north slopes of Gnawed Mountain.

CLAIMS: SHEBA, CU, JAY, JJ, ANN, DEE, DO, LYNN, CS, DAWN, VI, totalling 96.

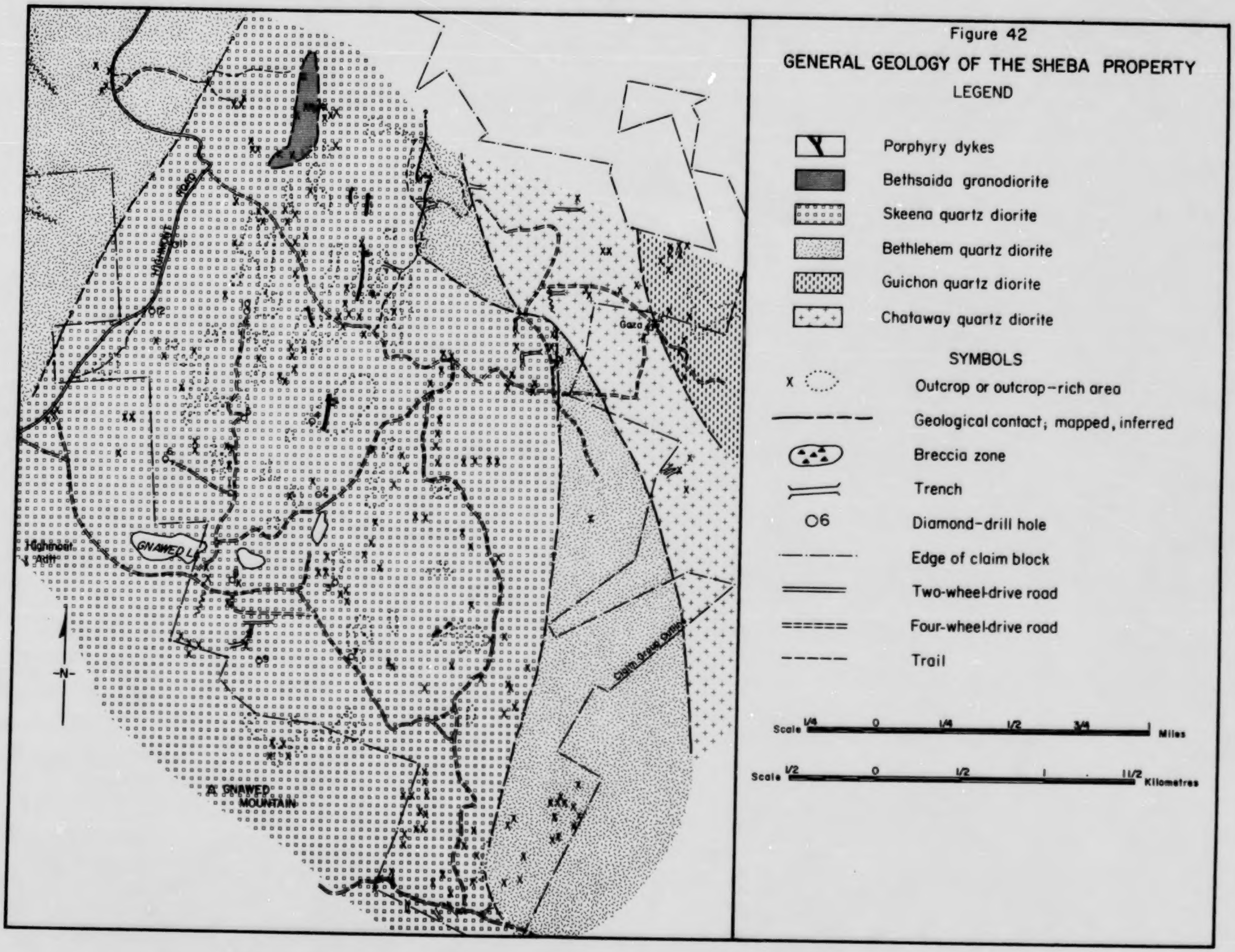
ACCESS: By the Highland Valley highway and Highmont road from Ashcroft, 30 miles.

OWNER: Sheba Copper Mines Limited.

OPERATOR: THE DOWA MINING CO., LTD., 1102, 1111 West Hastings Street, Vancouver 1.

Figure 42

GENERAL GEOLOGY OF THE SHEBA PROPERTY


LEGEND
Porphyry dykes
Bethsaida granodiorite
Skeena quartz diorite
Bethlehem quartz diorite
Guichon quartz diorite
Chataway quartz diorite
SYMBOLS
Outcrop or outcrop-rich area
Geological contact; mapped, inferred
Breccia zone
Trench
O6
Diamond-drill hole
Edge of claim block
Two-wheel-drive road
Four-wheel-drive road
Trail
Scale 1/4 0 1/4 1/2 3/4 1 Miles
Scale 1/2 0 1/2 1 1 1/2 Kilometres
HIGHMONT ROAD
Gaza
GNAWED L.
Highmont Adit
GNAWED MOUNTAIN
Claim Group Outline
-N-

METALS: Copper, Molybdenum.

DESCRIPTION:

ACKNOWLEDGMENTS: The willing cooperation and discussions with K. Minami, manager of the Vancouver office of The Dowa Mining Co., Ltd. and L. Saleken and P. McAndless, principals of Geotec Consultants Ltd. are gratefully acknowledged.

HISTORY: Work on the property was begun in 1964 when The Anaconda Company (Canada) Ltd. built access roads and conducted geological, geochemical, induced polarization, and magnetometer surveys. As a result of this work 11 holes totalling 7,585 feet were drilled. In 1965 further induced polarization surveys led to 2,355 feet of drilling in six diamond-drill holes. No work was done in 1966 but Sumitomo Metal Mining Co. of Canada Ltd. optioned the ground in 1967. Mapping, a soil sampling programme, and more induced polarization work were followed by trenching and 4,000 feet of percussion drilling in 15 holes. Much of the drilling was on or near the Jay 19 claim. In the first five months of 1968 Sumitomo carried out further mapping, soil sampling, and induced polarization surveys, bulldozed 42 trenches with total length 8,400 feet, and did 1,785 feet of percussion drilling in five holes. Late in 1968 Anaconda optioned the property once again. During 1969 they geologically mapped local areas, did 2.3 line-miles of induced polarization surveying, and 5,214 feet of diamond drilling in seven holes. Little was done in 1970 but in 1971 an option was taken by The Dowa Mining Co., Ltd. All the claims were geologically mapped at 1 inch equals 400 feet and 279 soil samples were taken along 5.3 miles of line on claims J 1 to 7, J 37 Fraction, J 38 Fraction, and J 104 Fraction. Subsequently, 12 diamond-drill holes totalling 8,569 feet were drilled on claims Jay 9 and 10 and 104 Fraction, Cu 1, 3, 4, and 6, J 4, 5, 7, and 38, and Ann 5 Fraction. The 1971 drill holes and mapping done by the Department of Mines and Petroleum Resources field crews as part of the Guichon project are the basis of this report.

GENERAL GEOLOGY: The claims are underlain by granitic rocks of the Guichon Creek batholith (Fig. 42). Rocks of the Skeena variety (formerly called the Contact phase, McMillan, 1971) underlie the central part of the property and are flanked to the east and west by rocks of the Bethlehem phase. Farther east, the Bethlehem phase rocks give way to rocks of first the Guichon, then the Chataway varieties (Highland Valley phase). All the rocks are quartz diorites or granodiorites. Distinctions between them for mapping purposes are based on textural criteria and colour index.

The granitic rocks are cut by quartz-plagioclase porphyry and aplite dykes. A small elongated body of Bethsaida granodiorite enclosed in Skeena quartz diorite occurs near the north edge of the property.

JOINT, FAULT, AND VEIN DISTRIBUTION: The property was mapped at 1 inch equals 1,320 feet as part of the Guichon Creek batholith project. The geological map, supplemented by outcrops located from company maps, is presented in Figure 42. On the basis of the 74 measurements which are represented on Figures 43 and 44, it is suggested that: (1) most of the joints are steeply inclined, (2) joints striking approximately 100 degrees predominate, and (3) joints striking approximately 025, 065, and 160 degrees are common and equally well developed.

Veins range widely in strike but those with north and east-northeast trends are most common. Few faults and veins with copper mineralization were mapped but those seen correlate roughly with the northerly and easterly joint sets. Most of the dykes encountered strike northward or east-northeastward. Topographic lineaments have similar trends.

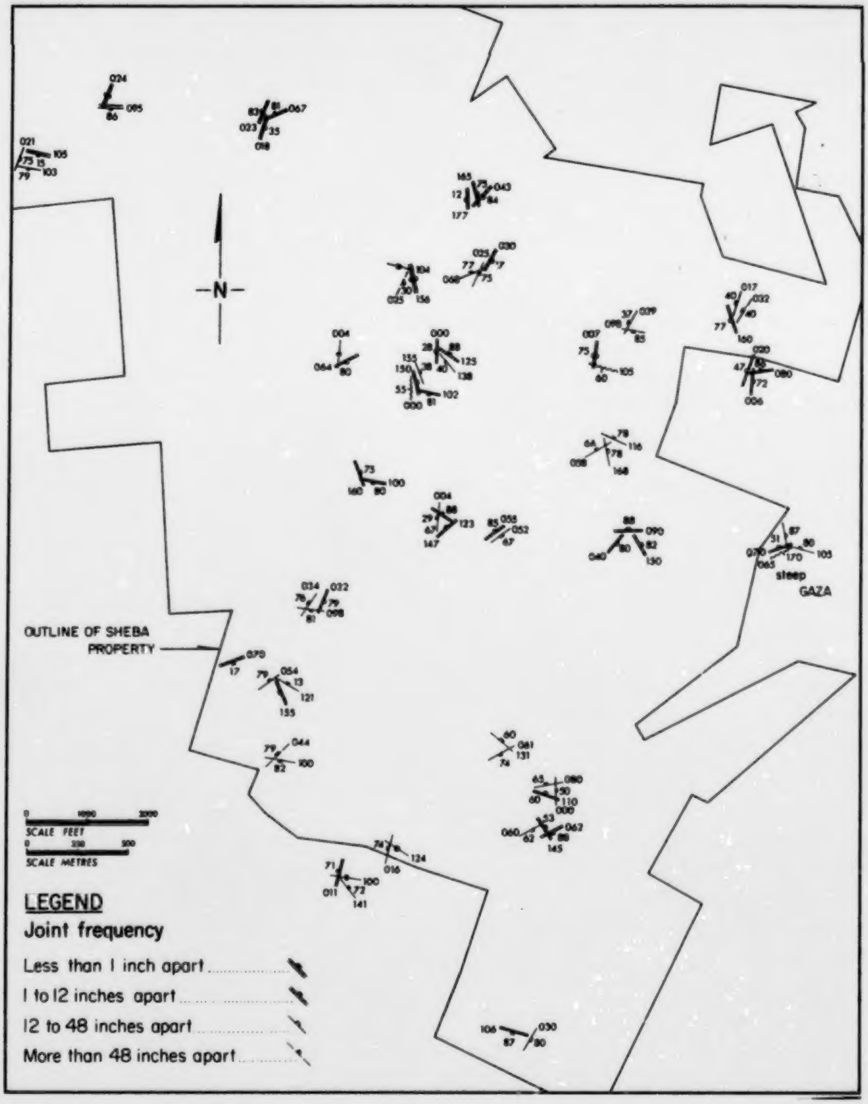

N
OUTLINE OF SHEBA PROPERTY
steep
GAZA
0 1000 2000
SCALE FEET
0 250 500
SCALE METRES
LEGEND
Joint frequency
Less than 1 inch apart
1 to 12 inches apart
12 to 48 inches apart
More than 48 inches apart

Figure 43. Locations of joint measurements showing frequency, Sheba property.

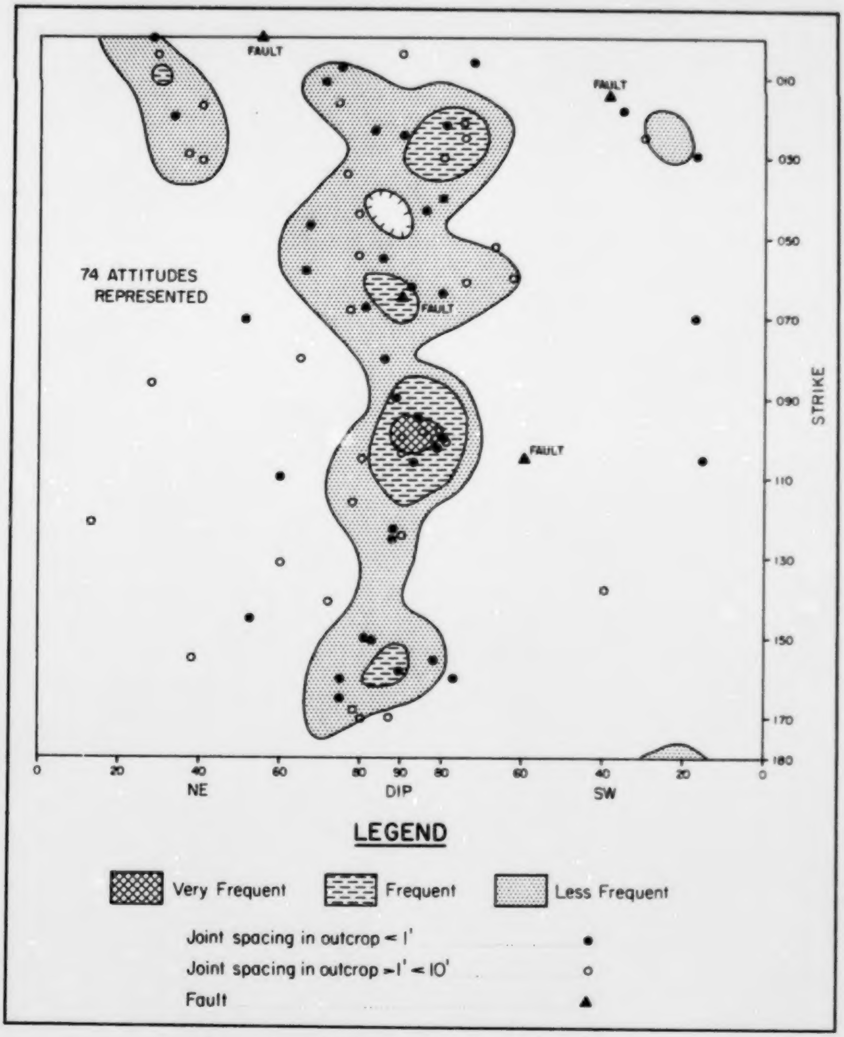


Figure 44. Joint distribution plot, Sheba property.

VEINS: The most common types of veins consist of epidote with or without quartz, hematite, and chlorite. However, epidote-chlorite veins containing K-feldspar or sericite or calcite, K-feldspar veins, and zeolite (laumontite) veins also are common. Barite was found in hole 71-4 in a vuggy vein. Copper and molybdenite mineralization occur with quartz, chlorite, epidote, and sericite-bearing veins. Rarely, in explosion (?) breccias (Carr, 1960) associated with porphyry dykes, tourmaline and hematite occur along with calcite, chlorite, and sericite.

ALTERATION: In part, alteration is associated with veining and fracturing; the control in other instances is uncertain. Weak argillic and propylitic alteration are widespread. Locally they are intensely developed. Phyllic and potassic alteration occur locally. Relatively better grade mineralization is usually found in relatively more intensely altered zones, for example, drill holes 71-3, 71-8, 71-9, 71-11, 71-12 (*see* accompanying table).

SHEBA PROPERTY, 1971 DRILL HOLE DATA

DRILL HOLE S71-1

OVERBURDEN DEPTH: 18 feet DEPTH OF HOLE: 753 feet

VEINS: Zeolite at 150 feet, 325 to 370 feet, and 730 feet; chlorite at 615 to 635 feet.

ALTERATION AND MINERALIZATION: Local dark green feldspar alteration and general weak propylitic alteration.

FAULTS: Shear zones at low angle to core at 250 and 290 feet; gouge from 405 to 425 feet.

X-RAY DATA:* Zeolite at 730 feet is laumontite.

THIN SECTION DATA: Plagioclase altered variously to sericite + calcite or chlorite + calcite + epidote; mafic minerals altered to chlorite ± calcite ± epidote.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite.

DRILL HOLE S71-2

OVERBURDEN DEPTH: 15 feet DEPTH OF HOLE: 680 feet

VEINS: Hematite ± epidote veins adjacent to dyke; zeolite, quartz + epidote, and chlorite veins at 430 to 500 feet and 580 to 670 feet.

ALTERATION AND MINERALIZATION: At 240 feet epidote and chlorite replace mafic minerals and molybdenite occurs as intergrowths in epidote clots; plagioclase has cream-coloured alteration adjacent to the dyke; dark green feldspar alteration common from 290 to 360 feet and 500 to 575 feet; bornite occurs in altered mafic minerals.

X-RAY DATA:* Zeolite at 490 feet is laumontite; plagioclase at 300 feet altered to kaolinite + calcite. Veins at 386 and 500 feet are calcite.

THIN SECTION DATA: Plagioclase altered to sericite ± calcite ± clay minerals and albite (?); mafic minerals to chlorite + calcite. In aplite dykes plagioclase is dusted with clay minerals; in porphyry dykes plagioclase altered to calcite + sericite + clay minerals; mafic minerals to chlorite + sericite.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite cut by quartz-plagioclase porphyry dyke from 245 to 285 feet with chilled contacts at 30 degrees to core; a few aplite stringers.

DRILL HOLE S71-3

OVERBURDEN DEPTH: 10 feet DEPTH OF HOLE: 908 feet

VEINS: Zeolite and chlorite from 10 to 85 feet; quartz + calcite + hematite from 390 to 430 feet; quartz + molybdenite ± chalcopyrite veins from 720 to 800 feet; quartz + epidote + molybdenite ± hematite and quartz + calcite + molybdenite and zeolite veins from 800 to 908 feet.

ALTERATION AND MINERALIZATION: Dark green feldspar alteration from 85 to 145 feet and 220 to 590 feet; local chalky argillic alteration from 145 to 220 feet, 390 to 430 feet, and 460 to 585 feet; local potassic alteration from 655 to 720 feet and 800 to 908 feet; plagioclase altered to cream-coloured mineral aggregate from 720 to 800 feet.

FAULTS: Shear zone at 90 feet has molybdenite in the gouge.

X-RAY DATA:* Plagioclase at 205 feet altered to kaolinite + calcite; zeolite at 905 feet is laumontite.

THIN SECTION DATA: At 513 feet calcite veins cut quartz veins; salmon pink plagioclase alteration at 781 and 806 feet consists of sericite + calcite.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite with local quartz-plagioclase porphyry and aplite dykes; fairly pervasive but weak copper mineralization from 520 to 790 feet.

DRILL HOLE S71-4

OVERBURDEN DEPTH: 13 feet DEPTH OF HOLE: 754 feet

VEINS: Quartz + bornite + chalcopyrite veins and chlorite + molybdenite stringers from 325 to 370 feet and 460 to 510 feet; zeolite veins.

ALTERATION AND MINERALIZATION: Chalcopyrite blebs occur in quartz pods at 100 feet and on sericitized fractures from 230 to 310 feet; local dark green feldspar alteration from 230 to 310 feet and 380 to 510 feet; local chalky argillic alteration from 380 to 510 feet.

X-RAY DATA:* Chamosite (iron-rich chlorite) on fractures at 180 feet; plagioclase altered to kaolinite at 403 and 425 feet; small amber crystals in a vug at 457 feet were barite.

THIN SECTION DATA: Green plagioclase at 291 feet has been replaced by sericite + calcite; in the porphyry dyke plagioclase is altered to sericite + calcite + epidote + clay minerals; mafic minerals to chlorite or epidote + calcite.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite with aplite and porphyry dykes to 640 feet, then quartz plagioclase porphyry to 754 feet (end of hole); dyke contacts chilled.

DRILL HOLE S71-5

OVERBURDEN DEPTH: 13 DEPTH OF HOLE: 702

VEINS: Quartz-bornite and local zeolite veins from 13 to 130 feet; hematite veins from 130 to 330 feet; calcite, zeolite, quartz + epidote ± molybdenite veins from 420 to 490 feet and 650 to 702 feet.

ALTERATION AND MINERALIZATION: Chlorite alteration with chalcopyrite mineralization on some fractures from 130 to 330 feet; local argillic alteration from 220 to 280 feet; local potassic alteration occurs from 280 to 330 feet.

X-RAY DATA:* White vein at 480 feet is calcite.

THIN SECTION DATA: At 203 feet, plagioclase which is green or pink in colour has altered to calcite + clay (?) minerals; mafic minerals to calcite + epidote.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite cut by local quartz-plagioclase porphyry stringers.

DRILL HOLE S71-6

OVERBURDEN DEPTH: 21 feet **DEPTH OF HOLE:** 448 feet

VEINS: Zeolite, calcite, sericite, and chlorite veins locally throughout the hole; molybdenite + epidote veins from 400 to 415 feet.

ALTERATION AND MINERALIZATION: Slight propylitic alteration.

THIN SECTION DATA: At 346 feet, greenish plagioclase consists of sericite with some epidote; mafic minerals altered to chlorite ± epidote.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite.

DRILL HOLE S71-7

OVERBURDEN DEPTH: 16 feet **DEPTH OF HOLE:** 774 feet

VEINS: Scattered zeolite, calcite, chlorite, and sericite veins from 16 to 430 feet.

ALTERATION AND MINERALIZATION: Chalcopyrite on fracture faces and quartz + molybdenite breccia from 460 to 490 feet; fairly pervasive weak green feldspar alteration from 430 to 760 feet then potassic alteration to end of hole; local argillic alteration around 700 feet.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite.

DRILL HOLE S71-8

OVERBURDEN DEPTH: 7 feet **DEPTH OF HOLE:** 758 feet

VEINS: Zeolite veins near 140 feet; quartz + K-feldspar and quartz + chalcopyrite + bornite + molybdenite veins from 270 to 370 feet; quartz-epidote stringers from 440 to 515 feet; ocherous hematite on fractures from 535 to 595 feet; pyrite and quartz + molybdenite ± chalcopyrite veins from 720 to 758 feet.

ALTERATION AND MINERALIZATION: Brecciated quartz + molybdenite veins and chlorite + chalcopyrite coated fractures from 7 to 130 feet; chalcopyrite + pyrite coat sericitized fractures from 370 to 440 feet; chalky white argillic alteration locally from 270 to 370 feet and 595 to 720 feet; pink feldspar alteration from 535 to 590 feet.

FAULTS: Gouge from 420 to 445 feet.

X-RAY DATA:* Plagioclase at 353 feet has altered to kaolinite.

THIN SECTION DATA: A sample from 279 feet shows bornite coating terminations of euhedral quartz crystals.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite. Aplite and pegmatite stringers from 150 to 180 feet contain blebs of bornite + chalcopyrite. Pervasive but weak copper mineralization from 270 to 480 feet.

DRILL HOLE S71-9

OVERBURDEN DEPTH: 13 feet DEPTH OF HOLE: 702 feet

VEINS: Quartz + ocherous hematite + calcite veins near 170 feet; from 285 to 415 feet local quartz + molybdenite + bornite + chalcopyrite, quartz + calcite + molybdenite, and quartz + chalcopyrite + molybdenite + pyrite veins occur; sericite + chalcopyrite + molybdenite veins and chlorite + epidote + chalcopyrite + pyrite veins from 400 to 470 feet; calcite and quartz + chlorite + epidote veins near 700 feet.

ALTERATION AND MINERALIZATION: Local weakly developed green feldspar alteration; mafic minerals fresh or chloritized from 13 to 305 feet; local intense argillic alteration from 300 to 400 feet and 680 to 702 feet; pink feldspar alteration zones common from 400 to 550 feet, less common to 680 feet.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite with pervasive but weak copper mineralization from 285 to 415 feet.

DRILL HOLE S71-10

OVERBURDEN DEPTH: 8 feet DEPTH OF HOLE: 696 feet

VEINS: Zeolite veins, some aplite stringers from 8 to 320 feet; aplite stringers from 370 to 380 feet contain quartz + chalcopyrite + molybdenite veins; some quartz + chalcopyrite veins with pink alteration halos from 320 to 685 feet.

ALTERATION AND MINERALIZATION: Local argillic alteration, intense in fault gouge zones from 8 to 320 feet; local green feldspar alteration from 320 to 685 feet; chalcopyrite occurs locally as a replacement mineral in mafic minerals from 320 to 685 feet.

FAULTS: Intermittent foot-scale gouge zones from 250 to 310 feet; gouge from 685 to 696 feet.

THIN SECTION DATA: A sample from 85 feet shows aplite cut by quartz-plagioclase porphyry; at 533 feet, the rock is vuggy and quartz-poor with plagioclase altered to clay ± sericite and vugs lined by chlorite + epidote + sericite ± calcite.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite cut by aplite stringers and quartz-plagioclase porphyry dykes. From 160 to 180 feet grade is visually estimated to be slightly less than 1 per cent copper. Malachite occurs locally throughout the hole.

DRILL HOLE S71-11

OVERBURDEN DEPTH: 40 feet DEPTH OF HOLE: 616 feet

VEINS: Epidote + calcite coat slip faces near 150 feet; calcite, zeolite, and quartz + epidote veins near 375 feet; zeolite and calcite veins from 530 to 580 feet.

ALTERATION AND MINERALIZATION: Argillic alteration along fractures from 40 to 580 feet; local pink alteration zones from 530 to 580 feet; intense chlorite-sericite alteration in shear zones have associated chalcopyrite + bornite.

FAULTS: Shear zone from 450 to 510 feet has flaky sericite with hematite, calcite, and bornite; shear zones from 580 to 616 feet.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite. Malachite stain to 250 feet. Grade from 450 to 510 feet is visually estimated to be slightly less than 1 per cent copper.

DRILL HOLE S71-12

OVERBURDEN DEPTH: 33 feet DEPTH OF HOLE: 748 feet

VEINS: Chlorite + epidote veins with pink alteration rims near 200 feet; some zeolite veining and hematite coatings on fractures from 240 to 370 feet and 590 to 650 feet; some calcite veins near end of hole.

ALTERATION AND MINERALIZATION: Chlorite + epidote on slip faces near 150 feet; local weak pink or green feldspar alteration from 520 to 590 feet; local argillic alteration from 710 feet to end of hole.

FAULTS: Gouge from 640 to 655 feet; shear zone with flaky sericite-chlorite alteration and bornite + chalcopyrite from 670 to 690 feet.

X-RAY DATA:* Vein at 360 feet is laumontite with calcite; that at 743 feet is calcite.

ROCK TYPE AND GENERAL COMMENTS: Skeena quartz diorite. Grade from 670 to 690 feet visually estimated to be 0.5 per cent copper.

*X-ray analyses by N. Colvin, Analytical and Assay Branch, British Columbia Department of Mines and Petroleum Resources.

Twenty-six thin sections were examined of core samples from the 1971 drilling. In virtually every sample mafic minerals are altered to chlorite with or without calcite and/or epidote and feldspars are altered to clay minerals, sericite, or sericite plus calcite. Plagioclase colour varied from pink to light or dark green but alteration minerals did not vary. Perhaps the relative abundance of each mineral within it controls plagioclase colour. Kaolinite has been identified by X-ray analysis as the major component in zones where plagioclase has altered to a soft, white, chalky-textured mineral aggregate. The best mineralization encountered was in hole 71-11 from 450 to 500 feet. Two thin sections from this zone revealed quartz-poor country rock in which plagioclase is partially altered to chlorite, calcite, and sericite. In one specimen interstitial calcite is prominent, in the other, fine-grained areas of intergrown quartz, calcite, and feldspar occur. Bornite is the predominant copper sulphide in the zone and is associated with flaky sericite, calcite, and hematite.

Alteration was apparently in part earlier than and in part synchronous with vein formation and mineralization and was at least in part later than emplacement of aplites and porphyry dykes. Locally, the dykes and aplites are veined and mineralized and some of the dykes are brecciated.

OCCURRENCE OF MINERALIZATION: Chalcopyrite, bornite, molybdenite, and minor amounts of pyrite occur in shear zones, breccias, alteration zones, and veins on the Sheba property. Where fracturing, alteration, and vein development are most intense, grades are best.

REFERENCES: Carr, J. M., 1960, Porphyries, Breccias, and Copper Mineralization in Highland Valley, B.C., *Cdn. Min. Jour.*, Nov., 1960, pp. 71-73; McMillan, W. J., 1971, *B.C. Dept. of Mines & Pet. Res.*, Preliminary Map No. 7 (four sheets); Northcote, K. E., 1969, Geology and Geochronology of the Guichon Creek Batholith, *B.C. Dept. of Mines & Pet. Res.*, Bull. No. 56.

ROB, ORO (No. 25, Fig. F)

LOCATION: Lat. 50° 21′ Long. 120° 58′ (92I/7W)
KAMLOOPS M.D. At approximately 4,000 feet elevation on Skuhun Creek, 3 miles southwest of Chataway Lake.

CLAIMS: ROB 1 to 14, 17, 19, 21, 23 to 27; ORO 1 to 6, 25, 26; ADD 3 and 4 Fractions; MM 1 to 16, 18, 20, 22, 24 to 27, 30 to 46.

ACCESS: The Skuhun Creek road passes through the property.

OWNER: ORO MINES LTD., 707, 475 Howe Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The area is underlain by intrusive rocks of the Jurassic Guichon Creek batholith near the contact with Triassic Nicola volcanic and sedimentary rocks.

WORK DONE: Road construction, 1,700 feet; trenching, 17 by 12 by 8 feet on Oro 3; rock blasting, 1,300 cubic feet on Rob 9 and 12.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 264 (Spa, Skat, etc.).

BETHLEHEM MINE (No. 44, Fig. F)

By David Smith

LOCATION: Lat. 50° 29.5′ Long. 120° 59′ (92I/7W)
KAMLOOPS M.D. On the north side of the Highland Valley.

CLAIMS: The company holds 64 Crown-granted and 374 recorded mineral claims and fractions east of Quiltanton (Divide) Lake.

ACCESS: By paved road from Ashcroft, 30 miles.

OWNER: BETHLEHEM COPPER CORPORATION LTD., 2100, 1055 West Hastings Street, Vancouver 1; mine address, Box 520, Ashcroft.

METAL: Copper (production shown in Table 1).

WORK DONE:

The mine worked on a continuous three-shift basis, with production coming from the Jersey and Huestis pits.

Major equipment in service included 17 Haulpak 50-ton trucks, three 88-B Bucyrus-Erie shovels, three 475 Michigan loaders, two 45-R rotary drills, three D-8 tractor dozers, and two road-graders.

Mill capacity for 1971 remained at 15,000 tons per day, the entire production being shipped by rail from a siding 5.5 miles west of Clinton to wharves in North Vancouver for shipment to Japan.

During 1971, limited diamond and percussion drilling were done on the Bethlehem property. Exploration drilling was carried out on the J-A zone.

Although no housing is available at the minesite, townhouses and apartment units are provided for employees in Ashcroft, and most employees commute from there.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 331.

XY (No. 11, Fig. F)

LOCATION: Lat. 50° 30.5′ Long. 120° 52.2′ (92I/10W)
KAMLOOPS M.D. Four miles east of the Bethlehem mine, 24 miles south of Savona.

CLAIMS: XY 1 to 28.

ACCESS: Via the North Pacific JB road, which branches off the Tunkwa Lake road 2 miles north of the Four Corners.

OWNER: COMET INDUSTRIES LTD. (formerly Comet-Krain Mining Corp. Ltd.), 409, 408 Granville Street, Vancouver 2.

DESCRIPTION: The claims are underlain by diorite and granodiorite of the Guichon Creek batholith.

WORK DONE: Magnetometer survey, 14 line-miles.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 269; Assessment Reports 2024, 3184.

RM (No. 18, Fig. F)

LOCATION: Lat. 50° 33.3′ Long. 120° 53.2′ (92I/10W)
KAMLOOPS M.D. Between 3,500 and 3,800 feet elevation 5 miles south of Tunkwa Lake.

CLAIMS: RM 1 to 6, 25 to 27, RM 1 and 2 Fractions, JT 1 Fraction.

ACCESS: By road from Ashcroft, 45 miles.

OWNER: ALWIN MINING CO. LTD., 807, 409 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: Copper mineralization occurs in altered rocks of the Hybrid phase of the Guichon Creek batholith.

WORK DONE: Magnetometer survey covering all claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 250; Assessment Report 3459.

FOR (No. 3, Fig. F)

LOCATION: Lat. 50° 36′ Long. 120° 55.8′ (92I/10W)
KAMLOOPS M.D. On Forge Creek, 3 miles west of Tunkwa Lake.

CLAIMS: FOR 1 to 18, 21, 22; FORGE 1 and 2 Fractions.

ACCESS: Via Trojan-Krain road.

OWNER: LEITCH MINES LIMITED, 700, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: A small showing consisting of chalcopyrite in a rusty quartz vein was found in a creek bottom on the west-central part of the group.

WORK DONE: Geological and geochemical surveys were done in 1970.

REFERENCES: Assessment Reports 2184, 2836.

LUCKY STRIKE (No. 10, Fig. F)

LOCATION: Lat. 50° 45′ Long. 120° 58.5′ (92I/10W, 15W)
KAMLOOPS M.D. South of Walhachin, 35 miles west of Kamloops.

CLAIMS: LUCKY STRIKE, SAM, MP, ARGUS, KAY, totalling approximately 76.

ACCESS: Via Highway 97 and secondary road.

OPERATOR: FORT VERMILION RESOURCES LTD., 705, 850 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The property is underlain by interbedded conglomerates, sandstones, and shales and Nicola volcanic rocks consisting of interbedded andesites, greenstones, agglomerates, tuffs, and limestone. In the Canadian Pacific Railway ballast quarry near Walhachin, chalcopyrite and bornite occur as fracture fillings in altered zones in Nicola volcanic rocks. Alteration minerals include hematite, magnetite, and calcite with some epidote and garnet.

WORK DONE: Geological, geochemical, and magnetometer surveys.

REFERENCE: Assessment Report 3072.

KRAIN (No. 43, Fig. F)

LOCATION: Lat. 50° 34′ Long. 121° 00′ (92I/10W, 11E)
KAMLOOPS M.D. Between 5,200 and 5,650 feet elevation 1 mile northwest of Bose Hill, 6 miles north of the Bethlehem Copper mine.

CLAIMS: KRAIN 1 to 14, 1 to 6 Fractions, KRAIN COPPER, DW 1 to 6, 1 Fraction.

ACCESS: By road from Bethlehem road, 6 miles.

OWNER: North Pacific Mines Ltd.

OPERATOR: GETTY MINING PACIFIC, LIMITED, 1904, 1177 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: The deposit lies near the northern periphery of the Guichon Creek batholith where it is in part covered by up to 600 feet of Kamloops Group volcanic rocks. The mineralization (chalcopyrite, bornite, and pyrite) occurs in shattered zones of intensely fractured and altered rocks in proximity to contacts between younger and older complex intrusions.

WORK DONE: Induced polarization and resistivity surveys, 6 line-miles; surface diamond drilling, three holes totalling 2,062 feet; percussion drilling, 16 holes totalling 5,030 feet.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 259.

CHIEF, GEO (No. 36, Fig. F)

LOCATION: Lat. 50° 44.5′ Long. 121° 02′ (92I/11E)
KAMLOOPS M.D. Between 1,500 and 2,800 feet elevation 1 mile southwest of Walhachin, 36 miles west of Kamloops.

CLAIMS: Fifty CHIEF, 6 GEO, 14 HASSO.

ACCESS: By road from Walhachin, approximately 2 miles.

OWNER: SUPERTEST INVESTMENTS AND PETROLEUM LIMITED, 335 Eighth Avenue SW., Calgary, Alta.

METALS: Silver, copper, zinc, iron.

DESCRIPTION: This is a contact metamorphic deposit at the contact of Kamloops, Nicola, and Cache Creek Group rocks with Guichon Creek batholithic rock.

WORK DONE: Magnetometer survey, 2.75 line-miles covering part of Geo 60 and Chief 23.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 336; Assessment Report 3506.

KEV (No. 13, Fig. F)

LOCATION: Lat. 50° 44'-46' Long. 121° 04'-10' (92I/11E, 14E)
KAMLOOPS M.D. On Separating Lake south of the Thompson River, 6 miles northeast of Ashcroft.

CLAIMS: KEV 1 to 106.

ACCESS: From Ashcroft via secondary roads.

OPERATOR: MUNDEE MINES LTD., 404, 550 Burrard Street, Vancouver 1.

WORK DONE: Airborne magnetometer, electromagnetic, and radioactivity surveys covering 104 line-miles.

REFERENCE: Assessment Report 3081.

FEED (No. 12, Fig. F)

LOCATION: Lat. 50° 33' Long. 121° 05' (92I/11E)
KAMLOOPS M.D. Approximately 19 miles south-southwest of Ashcroft by the southeast corner of Cinder Hill at elevation 4,400 to 5,100 feet.

CLAIMS: FEED 11 to 35.

ACCESS: By highway from Ashcroft, 20 miles, then by dirt fire access road up Woods Creek.

OWNER: JUMBO MINES LTD., 307, 475 Howe Street, Vancouver 1.

WORK DONE: Line-cutting on Feed 20, 22, 29, 34, 35.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 338, 339; Assessment Reports 2279, 2831, 3122.

AUDREY (No. 35, Fig. F)

LOCATION: Lat. 50° 44' Long. 121° 05' (92I/11E)
KAMLOOPS M.D. At approximately 3,000 feet elevation 9.5 miles east of Ashcroft at Twin Lakes (Pennie Lake).

CLAIMS: AUDREY 1 to 24.

ACCESS: By Highland Valley highway and Barnes Lake road from Ashcroft, 17 miles.

OWNER: THOR EXPLORATIONS LTD., 301, 540 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Minor chalcopyrite occurs with epidote alteration in rocks of the Hybrid phase of the Guichon Creek batholith.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 55 samples covering Audrey 1 and 2; magnetometer survey, 6 line-miles covering Audrey 1-12.
REFERENCE: Assessment Report 3248.

MB (No. 15, Fig. F)

LOCATION: Lat. 50° 34' Long. 121° 06.5' (92I/11E)
KAMLOOPS M.D. East of Woods Creek and west of Cinder Hill, 14 miles southeast of Ashcroft at elevation 4,600 to 5,000 feet.
CLAIMS: MB, totalling eight.
ACCESS: By dirt fire access road from the turnoff on the Highland Valley highway 17 miles from Ashcroft.
OWNER: CROYDON MINES LTD., 1177 West Hastings Street, Vancouver 1.
DESCRIPTION: The property is underlain by Chataway granodiorite of the Guichon Creek batholith.
WORK DONE: Magnetometer survey.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 345; Assessment Reports 2490, 3117.

SAGE (No. 14, Fig. F)

LOCATION: Lat. 50° 43'-44.5' Long. 121° 07.2'-10.6' (92I/11E)
KAMLOOPS M.D. Seven miles east of Ashcroft and 4.5 miles south of the Thompson River at elevations of 3,100 to 4,000 feet.
CLAIMS: SAGE 3, 5 to 30, 37 to 72.
ACCESS: From Ashcroft along the Highland Valley highway and the Barnes Lake road.
OPERATOR: LARGO MINES LTD., 1110, 505 Burrard Street, Vancouver 1.
WORK DONE: Electromagnetic survey, 40.33 line-miles; geological and geochemical survey covering all claims.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 350; Assessment Reports 2341, 2913, 3414.

KEEF (No. 28, Fig. F)

LOCATION: Lat. 50° 41'-42.5' Long. 121° 09'-13' (92I/11E)
KAMLOOPS M.D. Between 2,500 and 4,000 feet elevation on the south side of Barnes Creek, 4 miles east-southeast of Ashcroft.
CLAIMS: KEEF 1 to 4, 6, 8, 10, 25 to 31, 33 to 49, 53, 55 to 70, totalling 48 claims and fractions.
ACCESS: By the Barnes Lake road from the Highland Valley highway.
OWNER: ROKON MINES LTD., 200, 549 Howe Street, Vancouver 1.
DESCRIPTION: Hybrid phase granodiorite and quartz diorite which underlie the major part of the property are cut by relatively young aplite and pegmatite dykes. Part of the property is underlain by Tertiary volcanic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 3,000 feet; geochemical soil survey, 587 samples at 200-foot intervals.
REFERENCE: Assessment Report 2979.

PYRITE (No. 16, Fig. F)

LOCATION: Lat. 50° 45.6′ Long. 121° 10.2′ (92I/11E, 14E)
KAMLOOPS M.D. On the Thompson River, 5 miles east of Ashcroft, at an elevation of 2,000 feet.

CLAIMS: PYRITE 1 to 40.

ACCESS: From Ashcroft via the Highland Valley highway and the road past Barnes Lake.

OPERATOR: THOR EXPLORATIONS LTD., 301, 540 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: South of the Thompson River, the property is underlain by quartz diorite of the Hybrid phase of the Guichon Creek batholith, which has intruded Nicola volcanic rocks. The contact runs north-northwest down the hillside and volcanic rocks are to the west of it. At the southern end of the property the older rocks are unconformably overlain by Kamloops volcanic rocks. Disseminated pyrite is common in the Nicola volcanic rocks and copper mineralization occurs in local altered zones.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering Pyrite 1 and 2; induced polarization survey, 2.6 line-miles covering Pyrite 1, 2, 15, and 16.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 348; Assessment Reports 2259, 3246, 3247.

HY (No. 31, Fig. F)

LOCATION: Lat. 50° 40′ Long. 121° 11′ (92I/11E)
KAMLOOPS M.D. At elevations of 5,000 to 6,000 feet on the westerly slopes of Glossy Mountain, 8 miles southeast of Ashcroft.

CLAIMS: HY 50 to 70.

ACCESS: Via secondary roads off the Highland Valley highway.

OWNER: Q.C. EXPLORATIONS LTD., 201, 535 Howe Street, Vancouver 1.

DESCRIPTION: The claims are underlain by intrusive rocks of the Guichon Creek batholith. Trenching on HY 61 exposed an altered zone with finely disseminated pyrite and some copper stain.

WORK DONE: Geological and magnetometer surveys on HY 50-64; trenching on HY 61.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 340; Assessment Reports 3378, 3379.

KELLY, PAT, FOX (No. 37, Fig. F)

LOCATION: Lat. 50° 33′-35.5′ Long. 121° 11′-13′ (92I/11E)
KAMLOOPS M.D. Between 3,700 and 4,700 feet elevation in the Highland Valley, north of Pukaist Creek.

CLAIMS: KELLY 7, 8, PAT 1 to 14, FOX 1 to 3, 5, 7, 9 to 12, WIN 1 to 6, DALE 1 to 6, WREN 1 to 20, JOE 1 to 10, ACE 1 to 7, 9 to 13 Fractions, RICK 1 and 2 Fractions.

ACCESS: By Highland Valley highway from Ashcroft, 12 miles.

OWNER: TRUMPETER MINES LTD., 7, 13639 – 108th Avenue, Surrey.

WORK DONE: Self-potential survey covering Win 1 and 2 and Wren 14; road construction, 3 miles; percussion drilling, three holes totalling 600 feet on Wren 14 and Win 1 and one incomplete hole totalling 142 feet on Win 1.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 342.

GRAVITY SURVEY OF THE GUICHON CREEK BATHOLITH

By C. A. Ager and W. J. McMillan

INTRODUCTION: Three gravity profiles were run during the summer of 1971 as an extension of the detailed geological mapping project of the Guichon Creek batholith. Two profiles are oriented east-west; the third is roughly north-south. By blending data from the gravity and geological surveys it was hoped to delineate a reasonable three-dimensional model of the batholith.

GEOLOGY: The Guichon Creek batholith is a semi-concordant dome (Fig. 45) that is elongated slightly west of north. It intrudes sedimentary and volcanic strata of the Permian Cache Creek Group and Upper Triassic Nicola Group and is unconformably overlain by sedimentary and volcanic strata ranging in age from Middle Jurassic to Middle Tertiary. The batholith appears to be bounded on the east and west sides by faults of regional extent.

The batholith is composed of several nearly concentric phases which have contacts that may be sharp locally but are generally gradational. Extensive K-Ar dating has shown that, within the limits of error, all phases began retaining argon at the same time, 198 ± 8 million years ago (Northcote, 1969). However, geologic data indicate that phases are progressively younger from the border of the batholith inward.

The phases of the batholith are separable on the basis of compositional and textural criteria. From the oldest to the youngest, the following phases are distinguishable:

(1) The border, Hybrid phase, is highly changeable to uniform in composition as a result of varying contamination by adjoining country rock. It is typically rich in mafic minerals.

(2) The Highland Valley phase consists of the Guichon and Chataway granodiorites. The Guichon granodiorite has 15 per cent mafic minerals which occur as unevenly distributed clusters of anhedral grains, whereas the Chataway granodiorite has 12 per cent mafic minerals and is characterized by evenly distributed blocky mafic crystals, usually hornblende.

(3) The Bethlehem phase granodiorite has 8 per cent mafic minerals. It is characterized by irregularly distributed coarse-grained poikilitic hornblende crystals in a matrix containing evenly distributed fine to medium-grained mafic crystals.

(4) The centre of the batholith consists of the Bethsaida phase quartz monzonite which has 6 per cent mafic minerals. It is characterized by coarse-grained subhedral quartz phenocrysts and coarse-grained book-like biotite phenocrysts.

A period of extensive dyke emplacement of comagmatic porphyries followed the intrusion of the Bethlehem phase and a lesser period followed the Bethsaida phase.

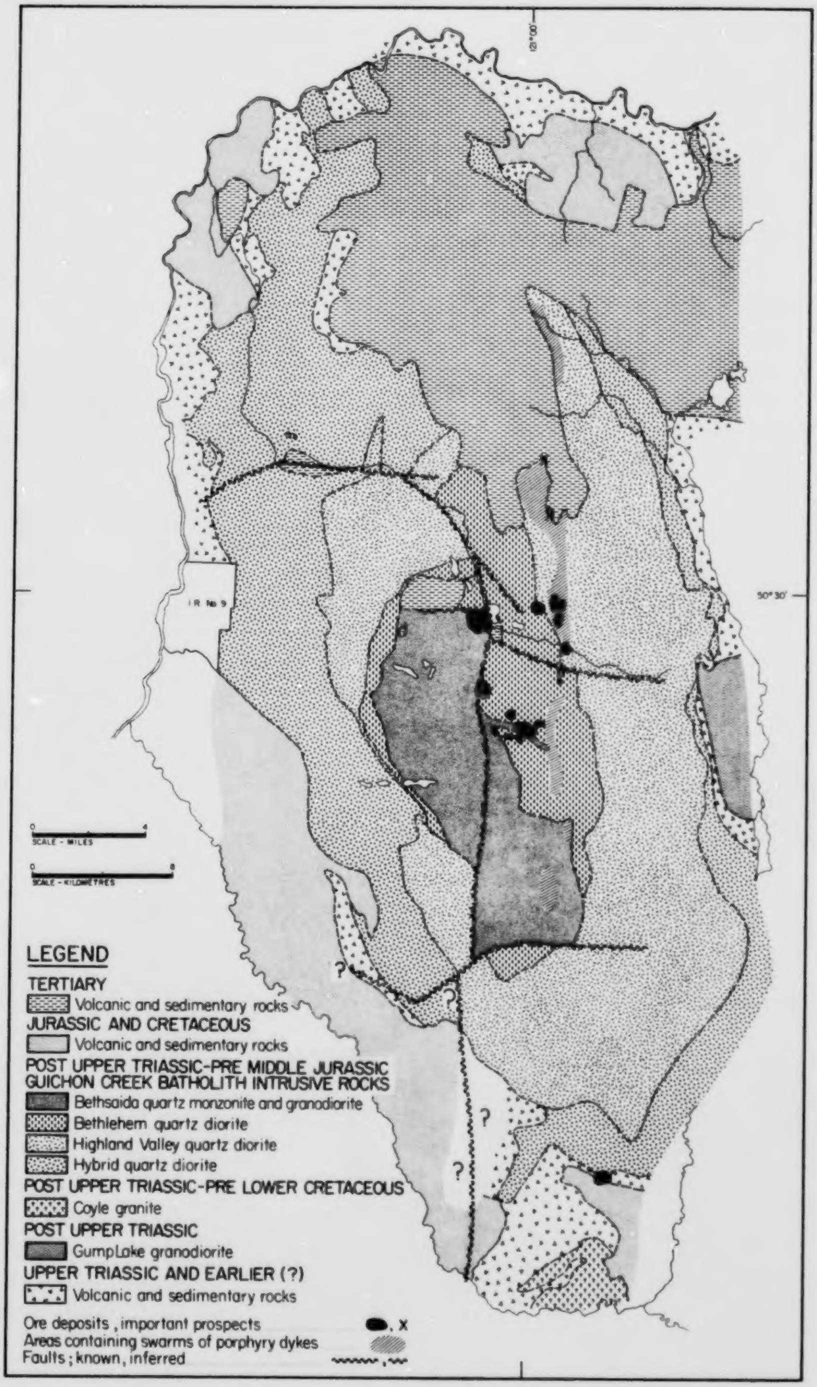

121°00'
50°30'
I R No 9
?
0 4
SCALE - MILES
0 8
SCALE - KILOMETRES
LEGEND
TERTIARY
Volcanic and sedimentary rocks
JURASSIC AND CRETACEOUS
Volcanic and sedimentary rocks
POST UPPER TRIASSIC-PRE MIDDLE JURASSIC GUICHON CREEK BATHOLITH INTRUSIVE ROCKS
Bethsaida quartz monzonite and granodiorite
Bethlehem quartz diorite
Highland Valley quartz diorite
Hybrid quartz diorite
POST UPPER TRIASSIC-PRE LOWER CRETACEOUS
Coyle granite
POST UPPER TRIASSIC
GumpLake granodiorite
UPPER TRIASSIC AND EARLIER (?)
Volcanic and sedimentary rocks
Ore deposits, important prospects
Areas containing swarms of porphyry dykes
Faults; known, inferred

Figure 45. Simplified geology of the Guichon Creek batholith.

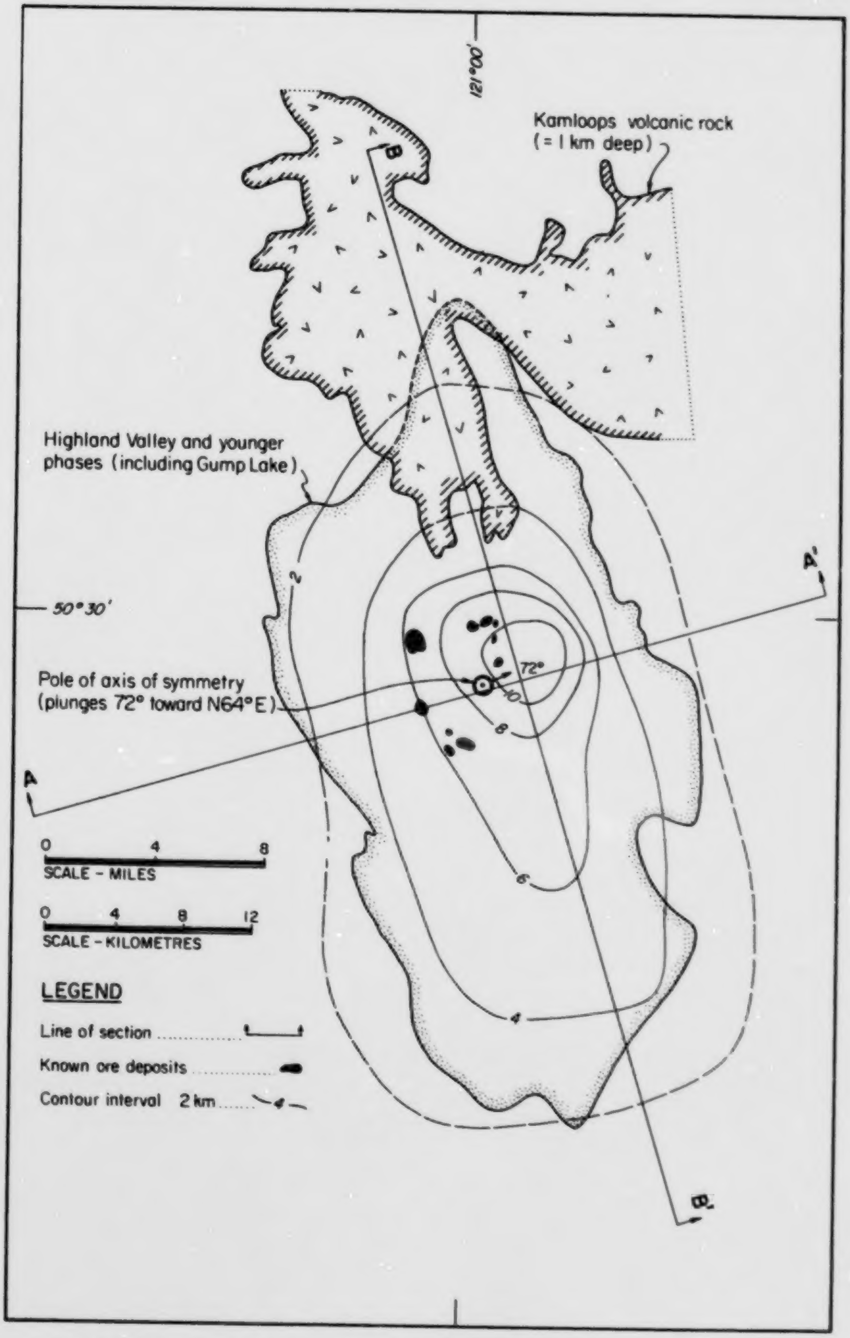

121°00'
Kamloops volcanic rock (= 1 km deep)
B
Highland Valley and younger phases (including Gump Lake)
50°30'
A'
Pole of axis of symmetry (plunges 72° toward N64°E)
72°
10
8
6
4
2
A
B'
0 4 8
SCALE - MILES
0 4 8 12
SCALE - KILOMETRES
LEGEND
Line of section
Known ore deposits
Contour interval 2 km

Figure 46. Gross shape plan of the Guichon Creek batholith derived from gravity data.

THE GRAVITY SURVEY: The gravity survey was conducted and the observations reduced according to National Standards as defined by the Gravity Division, Earth Physics Branch, Department of Energy, Mines and Resources, Ottawa, Ontario.

The gravity stations were tied into the National Control Network, and can be compared directly to any other observation throughout the Canadian network. The complete Bouguer anomaly values are relative to Ottawa which in turn is tied to the world base point at Potsdam, East Germany. The value at Ottawa is 980,622.00 milligals.

Three traverses over the central portion of the Guichon Creek batholith were selected on the basis of the mapped geology and the accessibility by four-wheel-drive vehicle. Gravity observations were taken at one-half mile intervals along two east-west and one north-south line.

Twenty-chain airphotos and 20-chain topographic maps with 50-foot contour interval were used to locate stations and to make regional topographic corrections. Level surveys insured that gravity station elevations were accurate to ±0.10 feet.

DEVELOPMENT OF THE INITIAL MODEL OF THE BATHOLITH: Two lines of approach were used to define a starting model to compare against the Bouguer anomaly map derived from the gravity survey. The first line was geological, the second geophysical. Flow foliations and phase relationships with rough east-west and north-south profiles were suggested from the surface geology. From the half-width gravity profile and consideration of the second vertical derivative it was possible to determine the sense and approximate dip of the contact of the Hybrid phase with younger phases of the batholith.

Measurements of specific gravities of 855 samples of batholithic and country rocks led to two conclusions:

(1) The Hybrid phase and older country rock with mean density 2.80 gm/cm^3 are not separable on the basis of density.

(2) The 2.76 gm/cm^3 contour virtually coincides with the Hybrid-younger phases contact.

The bulk density of the younger phases was estimated to be 2.65 gm/cm^3. The model calculated, therefore, treats the Hybrid plus country rock as a single density unit and the grouped Highland Valley, Bethlehem, and Bethsaida phases as a single density unit.

In order to gain further insight into the subsurface shape of the batholith, published 1-mile scale aeromagnetic maps of the batholith were digitized at 1 by 1-mile intervals over an area of 68 miles by 45 miles. The resulting total aeromagnetic field map and derived regional and second vertical derivative aeromagnetic maps yielded the following data which is pertinent to the gravity model.

(1) A halo of magnetic highs partially encloses the grouped younger phases.

(2) The 'highs' suggest that the batholith can be considered as a dipolar source. If this is true, then it is relatively shallow. The highs to the west have higher magnitude, therefore the batholith probably deepens to the east.

The complete Bouguer anomaly of the batholith was calculated, then filtered to separate large-scale (regional) and local (residual) effects. The gravity model of the batholith was refined by comparing the regional anomaly data with calculated data (Figs. 47 and 48).

An excellent fit with the geological and geophysical data was obtained by gravity model which depicts the batholith as a funnel-shaped body (Fig. 46). Its contacts have steep eastward dips on the east and west sides, steep northward dips on the south side, and

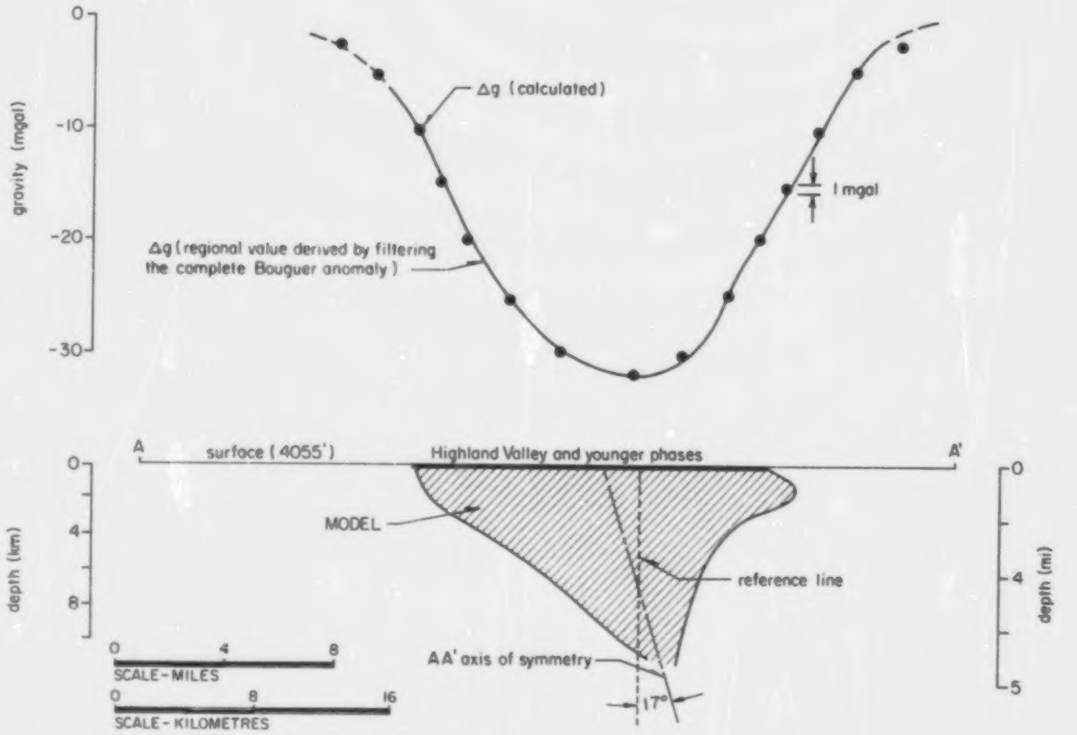


Figure 47. Depth-gravity section A-A', looking northerly.

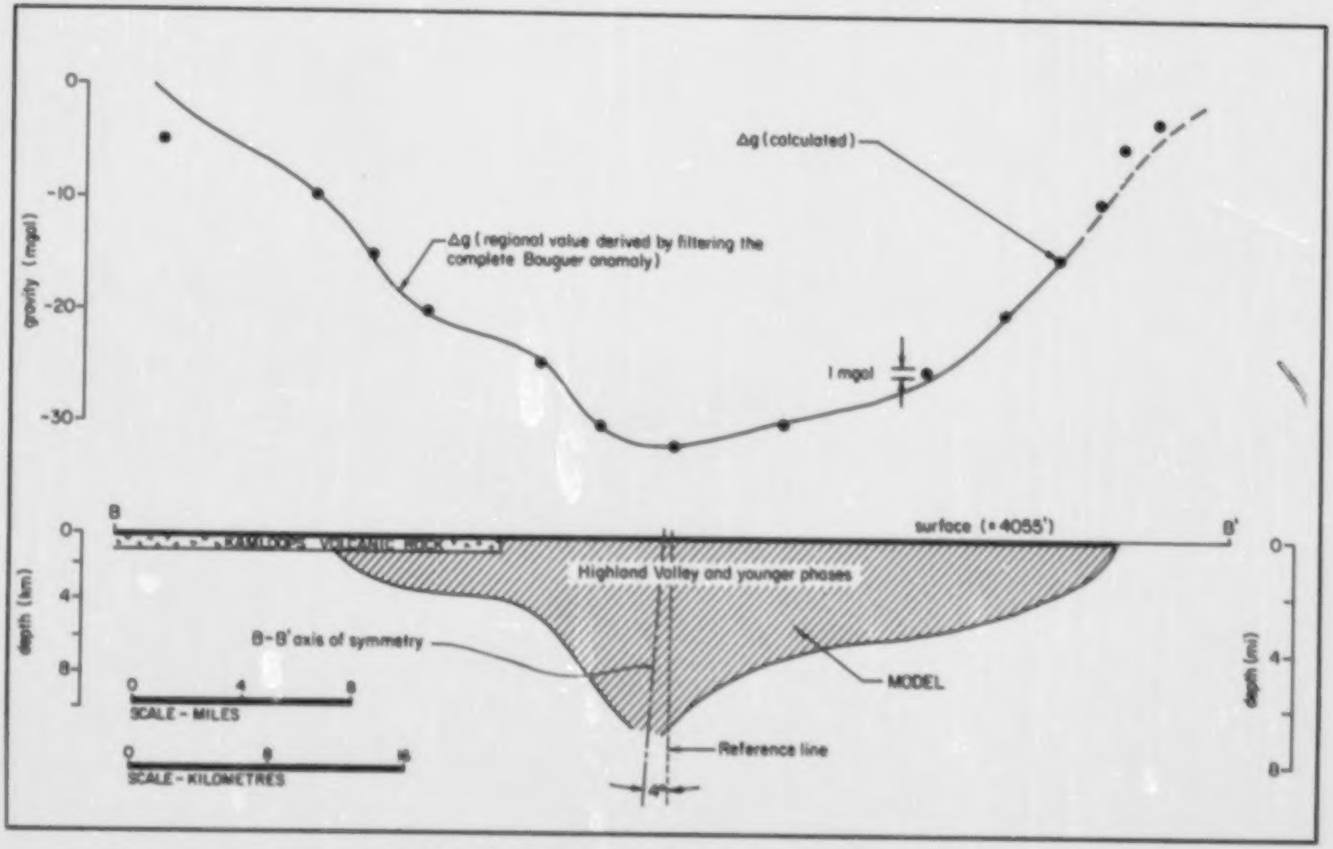


Figure 48. Depth-gravity section B-B', looking easterly.

vertical dips on the north side. The contact along the east side of the batholith gradually steepens and it has a moderate westward dip at depth (Fig. 47).

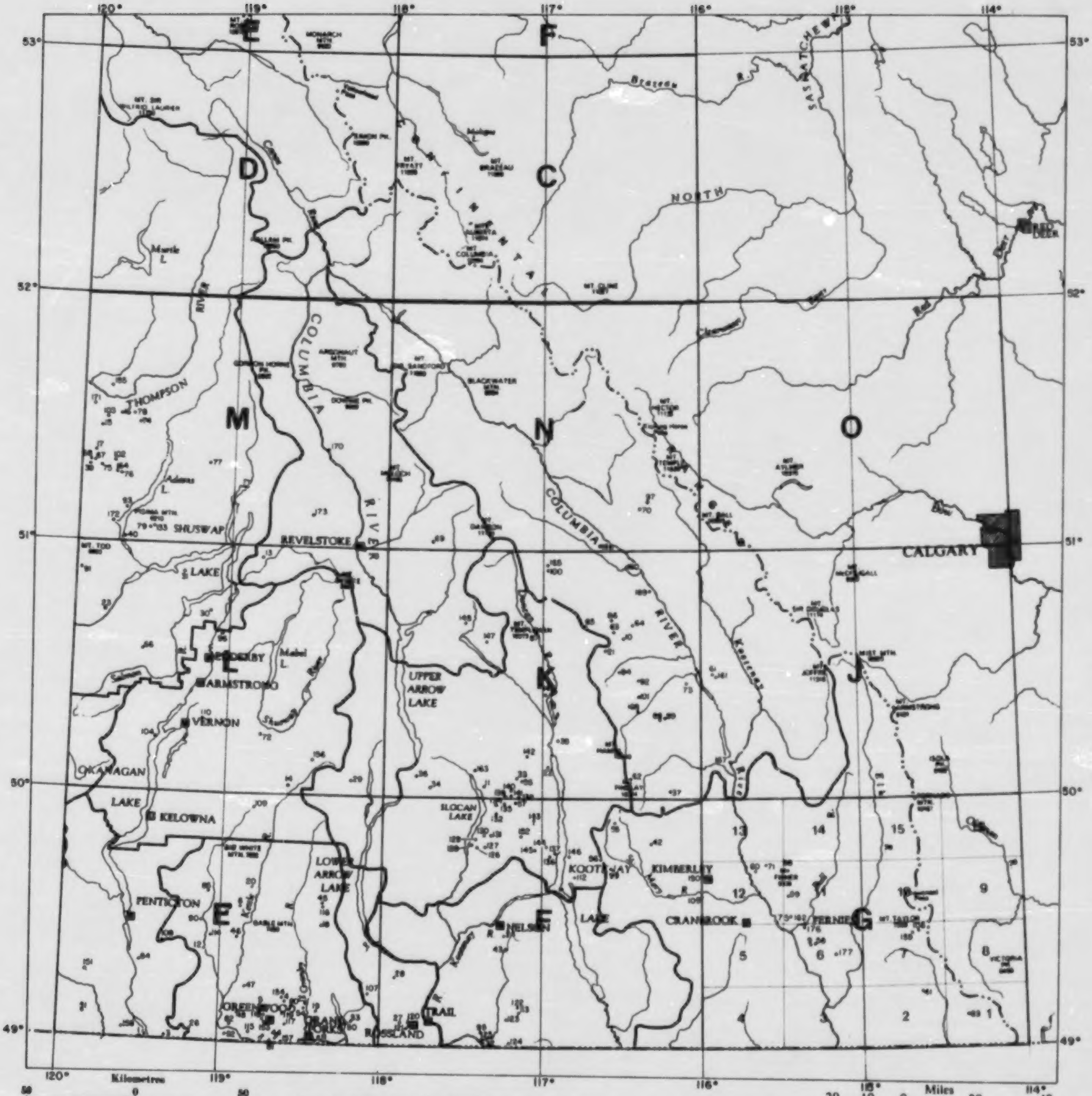
The gravity model gives the contact between the Hybrid and country rock and the younger phases. On geological grounds, however, it is suggested that sections A-A′ and B-B′ also indicate the gross shape of the Guichon Creek batholith.

The most unexpected result of this study in relation to economic geology is the close correlation of major ore deposits in the Highland Valley with the surface projection of the root zone of the batholith (Fig. 45). It is interesting to speculate that the major ore deposits represent 'fossil' conduits through the crystalline granitic cover rocks which were used by metal-rich volatiles generated during late-stage crystallization in the root of the batholith.

REFERENCES: Ager, C. A. (1972), A Gravity Model for the Guichon Creek Batholith, unpublished M.Sc. thesis, *U.B.C.*, Geophysics Department; Ager, C. A., McMillan, W. J., and Ulrych, T. J. (1972), Gravity, Magnetics, and Geology of the Guichon Creek Batholith, *B.C. Dept. of Mines & Pet. Res.*, Bulletin 62; McMillan, W. J. (1971), *B.C. Dept. of Mines & Pet. Res.*, Preliminary Map No. 7 (four sheets); Northcote, K. E. (1969), Geology and Geochronology of the Guichon Creek Batholith, *B.C. Dept. of Mines & Pet. Res.*, Bulletin 56.

CHATAWAY (No. 21, Fig. F)

LOCATION:	Lat. 50° 19.5′-23.5′ Long. 120° 54′-56.5′ (92I/7W) KAMLOOPS and NICOLA M.D. Between 3,000 and 5,500 feet elevation on Chataway Creek.
CLAIMS:	BOB, CAP, CECE, COE, JAY, LEN, MOON, RUM, SKY, TRISH, VAL, CAT, SHO, PRO, SHOO, STAD, etc., totalling approximately 200.
ACCESS:	By road from Merritt, 11 miles.
OWNER:	CHATAWAY EXPLORATION CO. LTD., 400, 550 Burrard Street, Vancouver 1.
METALS:	Copper, molybdenum.
DESCRIPTION:	Intrusive rocks of the Guichon Creek batholith.
WORK DONE:	Geochemical survey, 4 line-miles covering 10 claims; trenching, 2,900 feet.
REFERENCE:	*B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 371.


120°
119°
118°
117°
116°
115°
114°
53°
52°
51°
50°
49°
F
C
D
M
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G
THOMPSON
RIVER
COLUMBIA
RIVER
NORTH
SASKATCHEWAN
Brazeau
R.
Murtle L.
Adams L.
SHUSWAP
LAKE
REVELSTOKE
CALGARY
ENDERBY
Mabel L.
ARMSTRONG
VERNON
OKANAGAN
LAKE
KELOWNA
UPPER
ARROW
LAKE
LOWER
ARROW
LAKE
SLOCAN
LAKE
KOOTENAY
LAKE
KIMBERLEY
CRANBROOK
FERNIE
NELSON
PENTICTON
GREENWOOD
GRAND
FORKS
ROSSLAND
TRAIL
RED DEER
Kilometres
50
0
50
Miles
20
10
0
20
40

Figure 6. INDEX MAP TO PROPERTIES IN NTS GRID DIVISION 82 AND PART OF 83

KEY TO PROPERTIES ON INDEX MAP, FIGURE G.

1. RHONE, page 383.
2. MONICA, page 380.
3. SHELL, page 383.
4. MOE, BELLFLOWER, page 375.
5. SC, page 381.
6. FUKI, page 396.
7. MOUNTAIN CHIEF, page 397.
8. VAL TUNGSTEN, page 414.
9. TIE, page 416.
10. ANNETTE, SLIDE, page 426.
11. FERRY, CU, page 423.
12. FUR, FLO, FILL, page 385.
13. MOLY, page 435.
14. BISSON LAKE, page 431.
15. PY, page 439.
16. VM, page 442.
17. GIN, page 440.
18. VAN, page 398.
19. SD, page 374.
20. LOTTIE F, page 399.
21. ED, page 428.
22. STAN, LAND, page 421.
23. CB, page 434.
24. SILVER, page 404.
25. SPUD, AE, page 374.
26. COBO, page 383.
27. KAY, page 403.
28. BM, page 404.
29. FRED, page 430.
30. BURN, page 433.
31. JEN, COPPER NUGGET, page 434.
32. ABLE, page 402.
33. SB, page 422.
34. MILLIE MACK, page 423.
35. TOM, EK, page 421.
36. SHAKESPEARE, page 424.
37. ACE, page 420.
38. FOG, page 420.
39. H, VAL, page 439.
40. VIC, page 437.
41. ROK, CAT, page 415.
42. HILO, page 414.
43. EUPHRATES, page 404.
44. BAT, page 380.
45. KINGFISHER, page 399.
46. GUTS, CRICK, page 397.
47. WIND, FALL, page 382.
48. HOP, LEE, BAR, page 382.
49. JOHN, BEV, MOSH, page 396.
50. FFC, page 373.
51. SUSAP, SUP, page 384.
52. DOLO, page 456.
53. MASTODON, page 373.
54. IKE, page 374.
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BON (No. 107, Fig. G)

LOCATION: Lat. 49° 11.7'-13.3' Long. 118° 03.5'-06' (82E/1E)
TRAIL CREEK M.D. At approximately 4,900 feet elevation near Bonanza Pass, on Orion Creek, 12 miles northeast of Christina Lake.
CLAIMS: BON, totalling 32.
ACCESS: By Highway 3 from Christina Lake, 17 miles.
OWNER: PETER J. HAMAN, Box 997, Calgary, Alta.
METALS: Silver, lead, copper.
DESCRIPTION: The area is underlain by Mount Roberts Formation surrounded by Nelson intrusions.
WORK DONE: Geochemical soil survey, 325 samples covering 5 line-miles; induced polarization survey, 5 line-miles.
REFERENCE: Assessment Report 2063 (Gal).

MASTODON (No. 53, Fig. G)

LOCATION: Lat. 49° 0.56' Long. 118° 11' (82E/1E)
GREENWOOD M.D. At approximately 3,200 feet elevation on Castle Mountain, about 2 miles southeast of Cascade.
CLAIMS: MASTODON (Lot 2384), CANYON C (Lot 2385), SYLVESTER K (Lot 2386), LITTLE BURNIE Fraction (Lot 2387), LITTLE BROWN (Lot 2390), CALEDONIA (Lot 1756), ANN 1 to 158, HAZ-AL 1 to 16, BASIC 1 to 20.
ACCESS: By road from Cascade, 3 miles.
OWNERS: Hunter Point Explorations Ltd. and Chromex Nickel Mines Ltd.
OPERATOR: HUNTER POINT EXPLORATIONS LTD., 1955 Creelman Avenue, Vancouver 9.
METAL: Nickel.
DESCRIPTION: Ultrabasic rocks contain nickel sulphide.
WORK DONE: Surface diamond drilling, 12 holes totalling 5,500 feet covering Basic 1 and 2, Haz-al 1 and 2, Canyon C, and some Ann claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 433.

FFC (No. 50, Fig. G)

LOCATION: Lat. 49° 05' Long. 118° 12' (82E/1E)
GREENWOOD M.D. Between 1,460 and 4,300 feet elevation at and north of Fife, east of Christina Lake.
CLAIMS: Eighty-four FFC, 12 IOE, CANNONBALL (Lot 1036), PRIZE No. 2 (Lot 120s), MESSENGER (Lot 121s).
ACCESS: By road from Christina Lake, 6 miles.
OWNER: Boundary Exploration Limited.
OPERATOR: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary, Alta.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs with pyrite and pyrrhotite disseminated in altered greywacke and limestone in local areas adjacent to intrusive quartz diorite and minor gabbro.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering 57 FFC claims; geochemical soil survey, 1,200 samples covering 31 FFC claims; magnetometer survey, 25 line-miles covering same 31 claims.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1926, p. 497; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 433; Assessment Reports 3054, 3503.

SD (No. 19, Fig. G)

LOCATION: Lat. 49° 03'-10' Long. 118° 21'-27.5' (82E/1W) GREENWOOD M.D. Approximately 6 miles north of Grand Forks near Sand, Snowball, and Toronto Creeks, east of Granby River.

CLAIMS: SD 1 to 78, PBE 1 to 101, HO, FAT, BH, SO, JJ, AN, totalling approximately 350.

ACCESS: Via secondary road from Grand Forks, 6 miles.

OPERATOR: CRONUS MINERAL LIMITED, Box 820, Grand Forks.

WORK DONE: Airborne magnetometer and scintillometer surveys were made in 1970.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 432; Assessment Report 3172.

IKE (No. 54, Fig. G)

LOCATION: Lat. 49° 08.7' Long. 118° 29' (82E/1W) GREENWOOD M.D. On west side of north fork of Granby River, 8 miles north of Grand Forks.

CLAIMS: IKE 1 to 25, LOYAL CANADIAN (Lot 1608), NO. 1 (Lot 1362), BUNKER HILL (Lot 1609).

ACCESS: By road from Grand Forks, 8 miles.

OWNER: RYSLO SILVER MINES LTD., 837 West Hastings Street, Vancouver 1.

METALS: Copper, silver, gold.

DESCRIPTION: Chalcopyrite is found in skarn.

WORK DONE: Ground magnetometer survey and surface geological mapping covering Ike 16-25.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, pp. 309, 310 (Seattle); Assessment Report 3159.

SPUD, AE (No. 25, Fig. G)

LOCATION: Lat. 49° 06' Long. 118° 29' (82E/1W) GREENWOOD M.D. Approximately 6 miles north of Grand Forks on Fisherman Creek.

CLAIMS: SPUD 2 to 5, AE 1 to 4.

ACCESS: Via all-weather road from Grand Forks.

OWNER: THE GRANBY MINING COMPANY LIMITED, Box 490, Grand Forks.

WORK DONE: Line-cutting.

REFERENCE: Assessment Report 3007.

STAN (No. 80, Fig. G)

LOCATION: Lat 49° 07′ Long. 118° 34′ (82E/2E)
GREENWOOD M.D. Five miles northeast of Greenwood on the south side of Highway 3, east of Glenside Creek.

CLAIMS: STAN, ARBUR, KR, ROCKLAND (Lot 1493), JUMBO (Lot 592), totalling 49.

ACCESS: By logging road from Highway 3, three-quarters of a mile.

OWNER: King Resources Company.

OPERATOR: JASON EXPLORERS LTD., 775, 555 Burrard Street, Vancouver 1.

METAL: Copper.

WORK DONE: Geochemical soil sampling, induced polarization, and hammer seismic surveys on Stan 1, 3, 4, 6, 7, 12, 14, 41, 42 and Stan 3 and 4 Fractions; 181 samples collected and tested for copper.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 428; Assessment Report 3334.

MOE, BELLFLOWER (No. 4, Fig. G)

LOCATION: Lat. 49° 09.7′ Long. 118° 35.5′ (82E/2E)
GREENWOOD M.D. On the southeast slope of Mount Pelly, 11 miles north-northwest of Grand Forks.

CLAIMS: MOE (13 claims and 1 fraction), BELLFLOWER (Lot 3151), SILENT FRIEND (Lot 1433), OLD BIRD (Lot 1324), GOLDEN EAGLE (Lot 1164).

ACCESS: Via secondary road north from Highway 3 east of the Boundary Creek crossing.

OWNER: THE GRANBY MINING COMPANY LIMITED, Box 490, Grand Forks.

WORK DONE: A magnetometer survey was made in 1970 on Bellflower and Moe claims.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 234; Assessment Report 2861.

PHOENIX MINE (No. 117, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 05.8′ Long. 118° 35.9′ (82E/2E)
GREENWOOD M.D. About 3 miles east of Greenwood, covering the old townsite of Phoenix.

CLAIMS: There are about 230 recorded and Crown-granted claims held by the company. The main open-pit mine is on the OLD IRONSIDES Crown grant (Lot 589).

ACCESS: Via good gravel roads from Greenwood and the Grand Forks-Greenwood highway.

OWNER: THE GRANBY MINING COMPANY LIMITED, Phoenix Copper Division, Box 490, Grand Forks.

METALS: Copper, gold, silver (production shown in Table 1).

WORK DONE:

The open-pit mine operates in ground mined by underground methods about 50 years ago. Pillars, back-fill, and zones of weaker mineralization left by previous operators is now being extracted, but the known open-pit reserves are dropping rapidly.

Reclamation of finished areas continued with the planting of 2,000 evergreen seedlings, and 10 acres of disturbed area was hydro-seeded.

Some modernizing was done in the mill and a new 8-inch tailings line was installed along the south side of Twin Creek.

Reserves of marginal ore, stockpiled near the mill, amounted to 3,831,871 tons at year end. The material grades about 0.40 per cent copper.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 428.

MARSHALL (No. 119, Fig. G.)

By P. E. Olson

LOCATION: Lat. 49° 06.7′ Long. 118° 36.2′ (82E/2E)
GREENWOOD M.D. At the head of Providence Creek, north of Providence Lake, 3.5 miles northeast of Greenwood.

CLAIMS: The MARSHALL Crown grant (Lot 2388) and several other adjoining claims.

ACCESS: The Greenwood-Phoenix road crosses the property.

OWNER: SAN JACINTO EXPLORATIONS LIMITED, 2, 515 Granville Street, Vancouver 2.

METALS: Copper, gold (production shown in Table 1).

WORK DONE: A shipment of 177 tons of ore was made to the Trail smelter.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 305.

LEXINGTON (No. 157, Fig. G)

By B. N. Church

LOCATION: Lat. 49° 00.5′ Long. 118° 36.5′ (82E/2E)
GREENWOOD M.D. At approximately 4,200 feet elevation 6 miles southeast of Greenwood.

CLAIMS: Thirteen Crown-granted claims—LEXINGTON, CITY OF DENVER, GOLDEN CACHE Fraction, ORO, NOTRE DAME DES MINES Fraction, ORO Fraction, CITY OF VANCOUVER Fraction, PUYALLUP, MABEL, FANNY H Fraction, CITY OF PARIS, LINCOLN, No. 4; 15 mineral leases—CORNUCOPIA, No. 55, No. 66, ROB ROY, FALCON, LADY OF THE LAKE, SILVER DUCK Fraction, BLACK JACK, MARIE STUART, EXCELSIOR, CUBA, NEW JACK OF SPADES, ST. LAWRENCE, No. 5, CABERFAE Fraction; 151 full and fractional claims—DEW, COD, F. REID, JIM, NV, A, LINDA, MAY, LEX, VELMA.

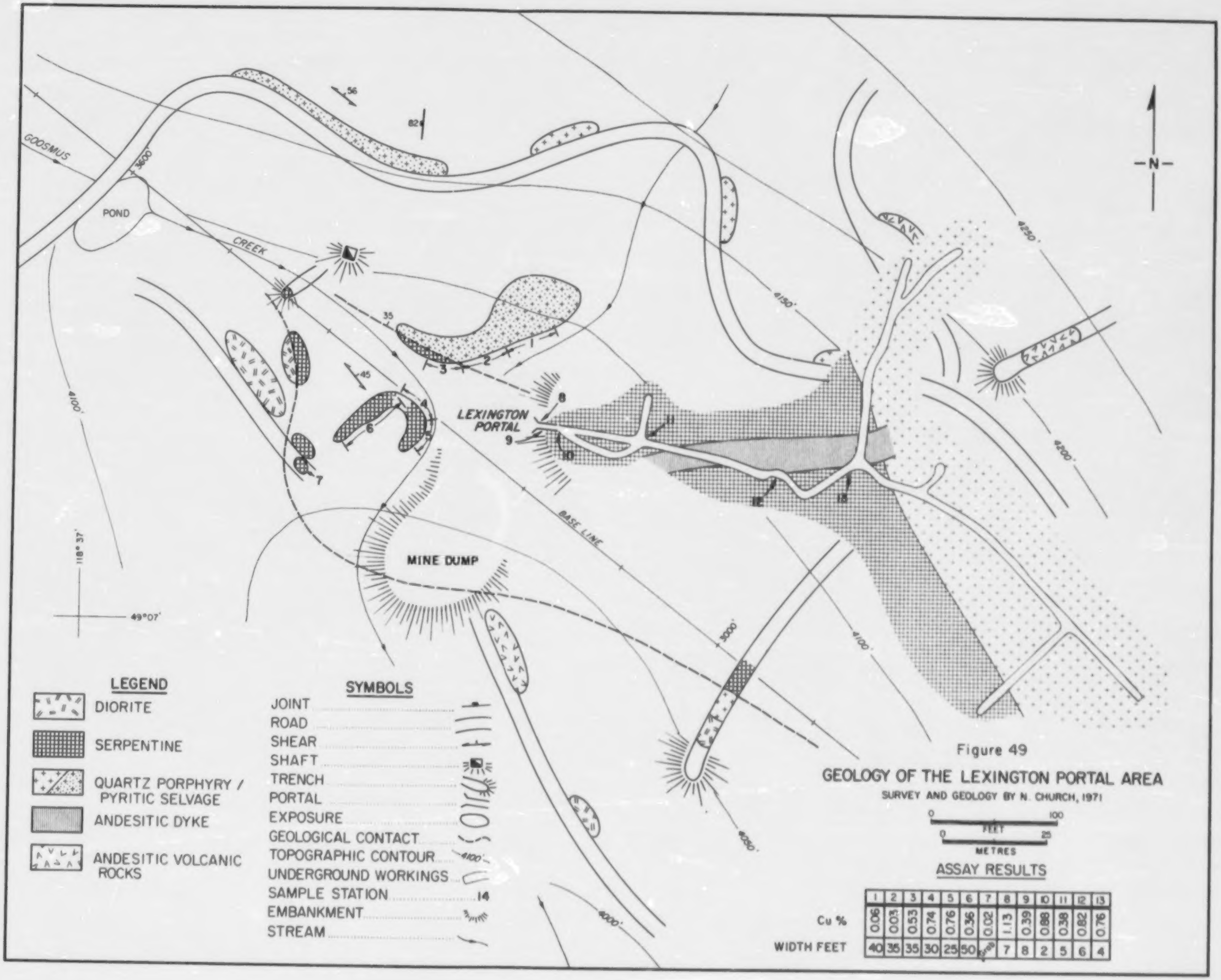
ACCESS: Nine miles by road from Greenwood.

OPERATOR: LEXINGTON MINES LTD., 1420, 1075 West Georgia Street, Vancouver 5.

METALS: Copper, gold, silver.

DESCRIPTION:

A comprehensive description of the property was given in Geology, Exploration, and Mining in British Columbia, 1970. The purpose of the present report is to fill in and up-date this geology from data gathered during a brief visit to the area in the spring of 1971.



N
GOOSMUS
CREEK
POND
3600'
56
82
35
45
1
2
3
4
5
6
7
8
9
10
11
12
13
LEXINGTON PORTAL
MINE DUMP
BASE LINE
4100'
4150'
4200'
4250'
3000'
4050'
4000'
118°37'
49°07'
LEGEND
DIORITE
SERPENTINE
QUARTZ PORPHYRY / PYRITIC SELVAGE
ANDESITIC DYKE
ANDESITIC VOLCANIC ROCKS
SYMBOLS
JOINT
ROAD
SHEAR
SHAFT
TRENCH
PORTAL
EXPOSURE
GEOLOGICAL CONTACT
TOPOGRAPHIC CONTOUR
UNDERGROUND WORKINGS
SAMPLE STATION
EMBANKMENT
STREAM
4100
14
0
100
FEET
0
25
METRES

Figure 49

GEOLOGY OF THE LEXINGTON PORTAL AREA

SURVEY AND GEOLOGY BY N. CHURCH, 1971

ASSAY RESULTS

	1	2	3	4	5	6	7	8	9	10	11	12	13
Cu %	0.06	0.03	0.53	0.74	0.76	0.36	0.02	1.13	0.39	0.88	0.38	0.82	0.76
WIDTH FEET	40	35	35	30	25	50	Grab	7	8	2	5	6	4

As outlined previously much of the work on the property over the past two to three years, under the direction of F. Franchi, consisted of soil and silt geochemical and induced polarization surveying; geological mapping; diamond drilling totalling more than 18,000 feet in 33 holes; about 2 miles of trenching; building access roads; and reconditioning underground workings and camp facilities in the City of Paris and Lincoln areas.

In the spring of 1971 the Lexington portal was re-opened. The geology and sample stations in the underground workings and in vicinity of the portal are shown on Figure 49. Some of the best mineralization on surface consists of pyrite and chalcopyrite impregnations in sheared serpentine located immediately south of the quartz porphyry contact. Similar mineralization was found at intervals in the serpentine in the Lexington tunnel between the quartz porphyry contact and the portal, a distance of about 250 feet. This segment of the Lexington tunnel roughly follows the strike of an andesite dyke. It appears that the dyke may have been instrumental in local mineralization of the serpentine walls possibly by damming hydrothermal solutions. Six chip sample sections taken at strategic points along this part of the tunnel average 0.73 per cent copper.

In addition to the exploration in the Lexington portal area, during the past year the block of claims held by Lexington Mines Ltd. was extended south and southwest of Gidon Creek beyond Norwegian Creek and Hyppolite Creek to the International Boundary. This newly acquired area is underlain by several units which are also found on the main claim block plus the easternmost edge of the Tertiary lava pile of the Midway basin. The mile-wide strip between Gidon Creek and Hyppolite Creek consists of black phyllitic argillite on the west spur of Mount McLaren, dacitic andesite volcanic rocks west of the argillite at about 4,250 feet elevation, and the quartz-feldspar porphyry stock west of the volcanics at about 3,800 feet elevation. These rocks are intruded extensively by relatively fresh biotite diorite dykes (the Scatter Creek Formation ?). The Tertiary lavas crop out on the low hills north of Norwegian Creek where they overlie the west side of the quartz-feldspar porphyry stock; the contact between the lavas and the stock is defined roughly by a line projected from the junction of McCarren Creek and Gidon Creek to the junction of Norwegian Creek and Hyppolite Creek. In the area south of Hyppolite Creek, the black phyllitic argillite unit exposed on Mount McLaren was traced to the International Boundary.

A review of the geology on the northeast side of the property suggests that the Mount Wright serpentine intrusion is, in fact, the northeast dipping limb of a small northwesterly plunging lopolith. A serpentine-gabbro zone found near the east boundary of the map-area is possibly the keel or feeder dyke system of the intrusion (Fig. 62, Geology, Exploration, and Mining in British Columbia, 1970).

Concerning the chemical composition of the Tertiary dykes and lava outliers on or near the Lexington property, a few features are worth noting. For example, the available chemical analyses of these rocks bear a marked similarity to the volcanic rocks of the White Lake basin near Penticton (Geology, Exploration, and Mining in British Columbia, 1970, p. 390). Three magma suites are recognized: series 'A,' 'B,' and 'C' of andesite, trachyte, and phonolite compositions, respectively (Fig. 50). Series 'A' is represented by two Eocene andesite lava samples, Nos. 1 and 3 from the Norwegian Creek area, and two diorite samples (the 'Scatter Creek' diorite ?) Nos. 2 and 4 from the Lexington and Phoenix areas, respectively. Series 'B' rocks are typically light brown or cream coloured and include the pulaskite sampled by Daly (1912), No. 5, at the Kettle River bridge near

Table of Chemical Analyses of Tertiary Volcanic and Dyke Rocks from the Greenwood-Boundary Area

Oxides Recalculated to 100

	1	2	3	4	5	6	7	8
SiO_2	61.15	60.27	58.10	57.84	63.22	58.18	56.33	55.56
TiO_2	0.97	1.08	1.00	0.93	0.73	0.89	0.79	0.67
Al_2O_3	14.33	14.70	14.77	16.06	17.96	17.52	20.78	21.83
Fe_2O_3	5.00	2.08	5.95	1.26	2.02	1.64	4.68	2.68
FeO		4.04		5.40	1.60	4.00	1.22	1.92
MnO	0.04	0.09	0.02	0.08	Tr.	0.09	Tr.	0.07
MgO	3.72	4.30	4.86	4.86	1.01	2.72	1.99	1.70
CaO	7.85	5.89	8.52	5.98	1.78	4.31	4.78	4.15
Na_2O	3.27	3.82	3.14	2.99	4.82	4.59	6.84	5.11
K_2O	3.31	3.73	3.64	4.60	6.86	6.06	2.59	6.31
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Oxides as Determined

	1	2	3	4	5	6	7	8
H_2O+	1.32	2.92	0.57	1.40	1.18	0.47	4.63	2.23
H_2O-		0.07		0.60	0.12	0.08	0.80	0.28
CO_2	0.02	0.12	0.03	0.14	0.20	---	0.35	0.75
P_2O_5	0.43	0.54	0.49	0.46	0.17	0.51	0.59	0.41
SrO	0.11	0.14	0.14	0.09	---	0.06	0.42	0.21
BaO	0.16	0.31	0.23	---	---	0.24	0.36	0.60
Refractive Index	1.539		1.540					

1. Midway (biotite) pyroxene andesite, Norwegian Creek area, analysis DC-2, p. 111, Church, 1963.
2. Biotite diorite near Mabel portal, analysis No. 2, p. 419, Church, 1971.
3. Midway pyroxene andesite, Norwegian Creek area, analysis DC-4, p. 111, Church, 1963.
4. Augite porphyrite (diorite dyke), Phoenix area, analysis No. I, p. 49, LeRoy, 1912.
5. Pulaskite dyke, near Midway, analysis No. 1, p. 419, Daly, 1912.
6. Pulaskite dyke, Phoenix area, analysis No. I, p. 51, LeRoy, 1912.
7. Midway analcitic rhomb-porphyry lava, Rock Creek area, p. 414, Daly, 1912.
8. Midway 'augite trachyte' lava (phonolite), Phoenix area, analysis No. I, p. 46, LeRoy, 1912.

Midway and by LeRoy (1912), No. 6, from the Phoenix area. These rocks are almost certainly feeder dykes to the Midway trachyte lavas. Series 'C' rocks consist of rhomb porphyries and analcitic phonolite lavas and equivalent intrusions. These are represented by analyses No. 7 by Daly (1912), a sample from Rock Creek, and No. 8 by LeRoy (1912), from the Phoenix area.

The three igneous series are probably all of Eocene age (Mathews, 1963 and Geology, Exploration, and Mining in British Columbia, 1970, p. 397). The main sequence of eruption, as recorded by the conformable Tertiary volcanic successions in the White Lake basin and the Midway area, appears to be series 'A,' 'B,' and 'C' in order from youngest to oldest.

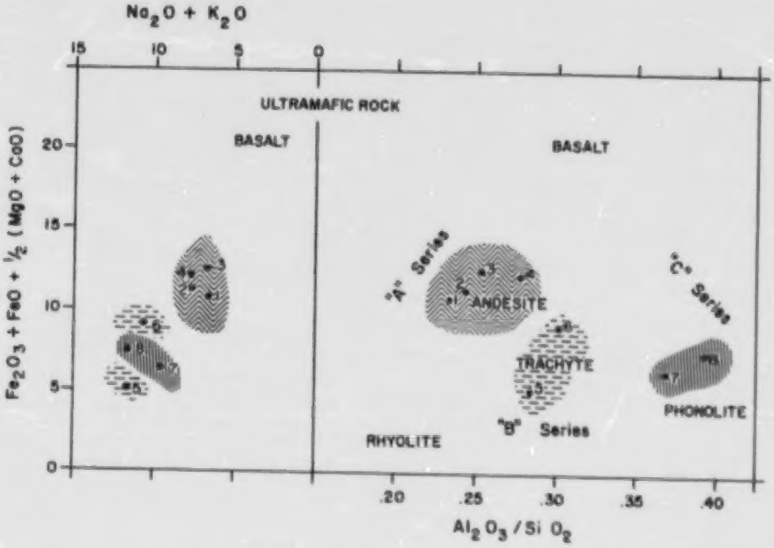


Figure 50. Composition variation of the Early Tertiary effusive rocks of the Greenwood-Midway area.

WORK DONE: Magnetometer and induced polarization surveys and 38 miles of line-cutting.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 396-402, 413-425; Church, B. N., 1963, Unpub. M.Sc. Thesis, *McMaster University*; Daly, R. A., 1912, *Geol. Surv., Canada*, Mem. 38; LeRoy, O. E., 1912, *Geol. Surv., Canada*, Mem. 21; Mathews, W. H., 1963, *U.B.C.*, Dept. Geol. Rept. No. 2.

AMANDY (No. 154, Fig. G)

LOCATION: Lat. 49° 11' Long. 118° 37' (82E/2E)
GREENWOOD M.D. Approximately a mile northwest of Jewel Lake, 5 miles northeast of Greenwood.

CLAIMS: AMANDY (Lot 2795), RODERICK DHU (Lot 598), ALICE (Lot 698), LADY OF THE LAKE (Lot 1171).

ACCESS: By forestry road from Jewel Lake, 2 miles.

OWNER: MORGAN COX, Greenwood.

METALS: Gold, silver, tellurides.

DESCRIPTION: Quartzitic schist is intruded by Nelson porphyritic granite. The schists have been fractured and sheared and generally quartz filled along bedding planes. The quartz veins are strong, persistent, and a few inches to over 7 feet wide.

WORK DONE: Stripping, 1,000 square feet on Roderick Dhu.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 231; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 304.

BAT (No. 44, Fig. G)

LOCATION: Lat. 49° 01' Long. 118° 38.4' (82E/2E)
GREENWOOD M.D. Between 3,500 and 4,000 feet elevation 5 miles south of Greenwood.

CLAIMS: BAT 1 to 20.

ACCESS: By road from Greenwood, 5 miles.

OWNER: ALWIN MINING CO. LTD., 807, 409 Granville Street, Vancouver 2.

METALS: Copper, silver, gold.

DESCRIPTION: Galena, pyrite, and pyrrhotite occur in and around quartz veins in phyllitic schists surrounded by granite. Disseminated copper is present in altered granite.

WORK DONE: Magnetometer survey covering Bat 3, 4, 6, 15-20.

REFERENCE: Assessment Report 3563.

KIS (No. 81, Fig. G)

LOCATION: Lat. 49° 00.5' Long. 118° 41' (82E/2E)
GREENWOOD M.D. On Norwegian Creek, 2 miles southeast of Highway 3 and 5 miles south of Greenwood.

CLAIMS: KIS 1 to 7.

ACCESS: Via Highway 3 and logging road from Greenwood.

OWNER: THE GRANBY MINING COMPANY LIMITED, Box 490, Grand Forks.

WORK DONE: Geochemical survey.

REFERENCE: Assessment Report 3335.

MONICA (No. 2, Fig. G)

LOCATION: Lat. 49° 02' Long. 118° 41.5' (82E/2E)
GREENWOOD M.D. Adjacent to Highway 3, 2.5 miles south of Greenwood.

CLAIMS: MONICA Fraction, LUCIA Fraction, TACOMA (Lot 1715), KEYSTONE (Lot 2912), GARNET (Lot 2724).

ACCESS: Via Highway 3.

OWNER: THE GRANBY MINING COMPANY LIMITED, Box 490, Grand Forks.

WORK DONE: Eight line-miles of magnetometer survey in 1970.

REFERENCE: Assessment Report 2867.

GREYHOUND, MOTHER LODE (No. 118, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 06.4' Long. 118° 42.5' (82E/2E)
GREENWOOD M.D. About 2 miles west of Greenwood on Deadwood Creek at elevations of 3,000 to 3,400 feet.

CLAIMS: Forty-nine claims and fractions, including the MOTHER LODE (Lot 704) and GREYHOUND (Lot 1014).

ACCESS: By road from Greenwood along Deadwood Creek, 3 miles.

OWNER: GREYHOUND MINES LTD., 407, 570 Eighth Avenue SW., Calgary 2, Alta.; mine office, Greenwood.

METAL: Copper (production shown in Table 1).

WORK DONE: The Mother Lode was worked years ago and supplied the Greenwood smelter. The Greyhound was explored about the same time, but was not mined until recently, since it contained only low-grade copper ore. The operation closed early in January and the company went into liquidation near the end of the year.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 429.

BUCKHORN, TAM O'SHANTER (No. 153, Fig. G)

LOCATION: Lat. 49° 05.6' Long. 118° 42.5' (82E/2E)
GREENWOOD M.D. At approximately 3,500 feet elevation on Buckhorn Creek south of Deadwood Camp, 2 miles west of Greenwood.

CLAIMS: BUCKHORN, TAM O'SHANTER, and IVA LENORE Crown grants and GOTCHA (COPPER COIN), HOUND, JIM McRAE, and other mineral claims.

ACCESS: By road from Greenwood, 2 miles.

OWNERS: San Jacinto Explorations Limited and John M. MacLean.

OPERATOR: PERRY, KNOX, KAUFMAN, INC., c/o Bull, Housser & Tupper, 675 West Hastings Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: Minor chalcopyrite occurs as fine disseminations and associated with fractures in diorite and hornfels.

WORK DONE: Surface diamond drilling, two holes totalling 1,201; percussion drilling, nine holes totalling 1,950 feet.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 227 (Buckhorn); *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 307 (Tam O Shanter); Assessment Report 1878.

SC (No. 5, Fig. G)

LOCATION: Lat. 49° 07.8' Long. 118° 42.5' (82E/2E)
GREENWOOD M.D. Three miles northwest of Greenwood, southwest of Wallace Creek.

CLAIMS: SC 1 to 22.

ACCESS: Via Highway 3 and the Jewel Lake-Wallace Creek road.

OWNER: ELDON D. CAMPBELL, Box 38, Greenwood.

WORK DONE: Magnetometer and electromagnetic surveys on SC 7-16.

REFERENCE: Assessment Report 3224.

MIDWAY (No. 115, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 02.4′ Long. 118° 48.5′ (82E/2W)
GREENWOOD M.D. On an open hillside about 2 miles north of Midway, at an elevation of 3,800 feet.

CLAIMS: NANCY No. 1.

ACCESS: Via 2.5 miles of jeep road from Midway.

OWNER: DAVE MOORE, Midway.

METALS: Gold, silver, lead, zinc.

WORK DONE: Several cuts were made in overburden along the strike of known mineralization.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 412.

WIND, FALL (No. 47, Fig. G)

LOCATION: Lat. 49° 12′-14′ Long. 118° 49′-52′ (82E/2W)
GREENWOOD M.D. At 4,000 feet elevation 7 miles northeast of Westbridge, between Fiva and Windfall Creeks.

CLAIMS: Twenty-four WIND, 24 FALL.

ACCESS: By forestry road from Kettle Valley highway, 7 miles.

OWNER: DeKALB MINING CORPORATION, 635 Sixth Avenue SW., Calgary 1, Alta.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet; induced polarization survey, 1 line-mile; geochemical soil survey, 500 samples.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 412; Assessment Report 2949.

HOP, LEE, BAR (No. 48, Fig. G)

LOCATION: Lat. 49° 07′ Long. 118° 53′ (82E/2W)
GREENWOOD M.D. At approximately 4,000 feet elevation 7 miles northeast of Rock Creek, between Lee and Hopper Creeks.

CLAIMS: Eighteen HOP, 20 LEE, 24 BAR, 22 PEER.

ACCESS: By forestry road from Rock Creek, 7 miles.

OWNER: DeKALB MINING CORPORATION, 635 Sixth Avenue SW., Calgary 1, Alta.

METALS: Copper, zinc, lead.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet and induced polarization survey, 30 line-miles covering Lee, Hop, and Bar claims; geochemical soil survey, 1,500 samples covering Lee, Hop, Bar, and Peer claims; road construction, 1 mile; surface diamond drilling, three holes totalling 1,400 feet on Hop claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 412; Assessment Report 2948.

LUX (No. 82, Fig. G)

LOCATION: Lat. 49° 03′-05′ Long. 118° 55′-56.5′ (82E/2W)
GREENWOOD M.D. Near Nicholson Creek, 3 miles northeast of Rock Creek.

CLAIMS: LUX 1 to 52.
ACCESS: From Rock Creek by logging road, 3 miles.
OPERATOR: G. V. LLOYD EXPLORATION LTD., 703 Fifth Street SW., Calgary 2, Alta.
WORK DONE: Ground radiometric survey on Lux 2, 4, 6, 8, 19-26, 37-44.
REFERENCE: Assessment Report 3354.

COBO (No. 26, Fig. G)

LOCATION: Lat. 49° 03′ Long. 119° 10.5′ (82E/3E)
GREENWOOD M.D. One mile northwest of Bridesville at 3,800 to 4,000 feet elevation.
CLAIMS: COBO 1 to 18.
ACCESS: Via Highway 3 and road up Brides Creek.
OWNER: STIKINE RESOURCES LTD., 1300, 355 Burrard Street, Vancouver 1.
WORK DONE: Self-potential survey on Cobo 1-6.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 411; Assessment Reports 2491, 3079.

SHELL (No. 3, Fig. G)

LOCATION: Lat. 49° 11.1′ Long. 119° 20′ (82E/3W)
OSOYOOS M.D. Five miles east of Osoyoos Lake and north of Highway 3 at elevations of 3,300 to 4,000 feet.
CLAIMS: SHELL 1 to 23.
ACCESS: Via Highway 3 and logging roads.
OWNER: FOURBAR MINES LTD., 13th Floor, 355 Burrard Street, Vancouver 1.
METALS: Copper, silver, lead, zinc.
DESCRIPTION: Pyrrhotite, sphalerite, chalcopyrite, and galena occur disseminated in quartzite of the Anarchist Group.
WORK DONE: Magnetometer survey on Shell 6, 8, 10, 17-22.
REFERENCE: Assessment Report 2926.

ROHNE (No. 1, Fig. G)

LOCATION: Lat. 49° 01′ Long. 119° 29.3′ (82E/3W)
OSOYOOS M.D. On the west side of Osoyoos Lake, 2 miles southwest of Osoyoos.
CLAIMS: ROHNE Fraction (Lot 2676), GEM (Lot 3311), WHISTLER (Lot 3557), BLUE BELL (Lot 1902), MOLKA (Lot 2675), BERTHA Fraction (Lot 2677), CHUKAR 1 to 16, MOLY 1, 2, 4, QUAIL 1, 2, and 3 Fractions.
ACCESS: Via Highway 3 from Osoyoos.
OPERATOR: PERRY, KNOX, KAUFMAN, INC., c/o Bull, Housser & Tupper, 675 West Hastings Street, Vancouver 2.
METAL: Copper.

DESCRIPTION: The claims are underlain by granodiorite and diorite of Mesozoic age containing sporadic showings of chalcopyrite, pyrite, and oxide copper minerals.
WORK DONE: Induced polarization and resistivity surveys were made in 1970.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 221; Assessment Reports 658, 808, 2922.

WALT, BUL (No. 158, Fig. G)

LOCATION: Lat. 49° 01.5′-03.5′ Long. 119° 34.8′-36.7′ (82E/4E)
OSOYOOS M.D. At approximately 3,500 feet elevation between Richter and Blue Lakes, 5 miles west of Osoyoos.
CLAIMS: WALT, BUL, totalling 66.
ACCESS: By road from Richter Pass, 7 miles.
OWNER: MULTIPLE MINING DEVELOPMENT LTD., 4316 – 53rd Street, Red Deer, Alta.
METALS: Copper, molybdenum.
WORK DONE: Topography mapped; surface geological mapping and geochemical survey, 700 samples covering all claims; trenching, approximately 100 feet on Bul 17; surface diamond drilling, two holes totalling 510 feet on Walt 25 and 27.

SUSAP, SUP (No. 51, Fig. G)

LOCATION: Lat. 49° 06.8′ Long. 119° 49.6′ (82E/4W)
OSOYOOS M.D. At approximately 4,000 feet elevation between Susap and Hunter Creeks, 3 air miles west of Similkameen River and 7 miles south of Keremeos.
CLAIMS: SUSAP Fraction, SUP 3 to 6, BUCK 11 to 26, RON 1 to 5.
ACCESS: By Highway 3 from Keremeos, 12 miles.
OWNER: CRO-MUR MINING AND EXPLORATION CO. LTD., 414 Ellis Street, Penticton.
METALS: Copper, molybdenum, silver.
DESCRIPTION: Molybdenite and chalcopyrite occur as fracture fillings in diorite and quartz monzonite with K-feldspar, chlorite, sericite, and epidote alteration along fracture surfaces.
WORK DONE: Surface and underground workings mapped; underground geological mapping, 1 inch equals 20 feet on Sup 5 and 6; trenching, 15,000 feet on Ron, Buck, and Sup claims; underground work, 20 feet on Sup 4.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 395; Assessment Report 1578.

DOG (No. 84, Fig. G)

LOCATION: Lat. 49° 17′-19′ Long. 119° 29′-31′ (82E/5E, 6W)
OSOYOOS M.D. At elevations of 2,100 to 3,100 feet on Irrigation Creek, 3 miles southeast of Okanagan Falls.
CLAIMS: DOG 1 to 58, AJAX 1, 2.

ACCESS: Via good logging road which leaves Highway 97 at a point 4 miles south of Okanagan Falls.

OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.

DESCRIPTION: The claims are underlain by high-grade metamorphic schists and gneisses, dunite, and granulite of the Shuswap Complex.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet; geochemical surveys, 423 soil samples and 100 rock samples; induced polarization survey, 8 line-miles; electromagnetic survey, 18.7 line-miles; magnetometer survey, 16.8 line-miles.

REFERENCE: Assessment Report 3353.

GOLCONDA (No. 151, Fig. G)

By David Smith

LOCATION: Lat. 49° 15.7′ Long. 119° 50.5′ (82E/5W)
OSOYOOS M.D. Adjacent to Olalla, on the west and south of Olalla Creek.

CLAIMS: COPPER KING (Lot 3065s), VOIGHT, NORTHSTAR, TROUT, ALMA 1 to 7.

ACCESS: By gravel road, 1.5 miles from Olalla.

OWNER: TRENT RESOURCES LTD., 227, 470 Granville Street, Vancouver 2.

METALS: Copper, molybdenum.

WORK DONE: In 1971 no underground work was done. A small crew worked for two weeks on the mill site. There was no production and the mine has closed.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 395.

HIGHLAND BELL MINE (No. 114, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 26.1′ Long. 119° 03.6′ (82E/6E)
GREENWOOD M.D. On the west slope of Mount Wallace, about 1 mile east of Beaverdell.

CLAIMS: Fourteen recorded and 32 Crown-granted claims.

ACCESS: The property is serviced by several roads from Beaverdell.

OWNER: TECK CORPORATION LTD., 700, 1177 West Hastings Street, Vancouver 1; mine office, Beaverdell.

METALS: Silver, lead, zinc (production shown in Table 1).

WORK DONE: Work was confined mainly to stoping and salvaging in previously worked areas. Exploration was sharply curtailed in order to maintain an operating profit. There was a decline in the price of silver and a drop in ore grade during the year. The mill worked continuously during 1971 at a rate of about 100 tons per day.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 409.

FUR, FLO, FILL (No. 12, Fig. G)

LOCATION: Lat. 49° 22.5′ Long. 119° 06.7′ (82E/6E)
GREENWOOD M.D. Four miles south of Beaverdell.

CLAIMS: FUR, FLO, FILL, GOFUR, PLAN, DIP, totalling 118 claims and fractions.

ACCESS: Via dirt road from Beaverdell.

OWNER: ARGENTIA MINES LTD., c/o Donald W. Paine, R.R. 6, Westside Road, Kelowna.

METALS: Copper, lead, zinc.

DESCRIPTION: Chalcopyrite, galena, sphalerite, and cuprite occur disseminated in granodiorite.

WORK DONE: Twelve miles of line-cutting, geological mapping, and geochemical soil sampling were done during 1970 by Canex Aerial Exploration Ltd. A geochemical survey was done on Dip 9 Fraction, Fill 1, 5-6, Flo 2-5, 9, 10, Fur 18, Gofur 1-3, and Plan 1-7 and 3,600 feet of trenching was done on some claims in 1971.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 479 (Doorn); Assessment Reports 3006, 3110.

CARMI (No. 90, Fig. G)

LOCATION: Lat. 49° 29.3′ Long. 119° 07.3′ (82E/6E, 11E)
GREENWOOD M.D. At approximately 4,000 feet elevation at Carmi, 4.5 miles north-northwest of Beaverdell.

CLAIMS: CARMI (Lot 2352), IVY, MARY O, CAPCO, IVY O, totalling approximately 250.

ACCESS: By road from Carmi.

OPERATORS: HUSKY OIL LTD. and G. V. LLOYD EXPLORATION LTD., 730 Fifth Street SW., Calgary 2, Alta.

METALS: Molybdenum, copper, silver.

WORK DONE: Claims mapped; surface geological mapping, 1 inch equals 50 feet covering May (Lot 2355) and No. 3 (Lot 2354), 1 inch equals 100 feet covering Capco 42-45, and 1 inch equals 100 feet covering Ivy 1-8; underground geological mapping, 1 inch equals 20 feet covering May (Lot 2355); geochemical survey, 2,000 samples covering Ivy, Capco, Ivy O, and Mary O claims; ground magnetometer survey, 25 line-miles covering Ivy and Capco claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 408.

LYNX, LATE (No. 108, Fig. G)

By B. N. Church

LOCATION: Lat. 49° 23′ Long. 119° 20.4′ (82E/6W)
OSOYOOS and GREENWOOD M.D. At approximately 6,000 feet elevation on Allendale Lake, 12 miles northeast of Okanagan Falls.

CLAIMS: LYNX 1 to 31, LATE 1 to 4, BUSH 1 and 2, TED 1 to 15, OTTER 1 to 20, BONANZA 1 to 32.

ACCESS: By road from Okanagan Falls, 12 miles.

OPERATOR: SELCO EXPLORATION COMPANY LIMITED, 6th Floor, 55 Yonge Street, Toronto 1, Ont.

METAL: Copper.

DESCRIPTION:

INTRODUCTION: This report is intended as a review of an interesting copper prospect recently discovered in a young Coryell-type stock located 10 miles northeast of Okanagan Falls near Allendale Lake.

The geological and mineralogical observations which form the basis of this study were made during a one-week visit to the area by the writer in June 1971.

HISTORY: Scattered copper mineralization was discovered by R. W. McLean in 1966 on the hill immediately west of Allendale Lake in the area now included in the Lynx-Late claim block (Fig. 51). After some preliminary prospecting and sampling by McLean and his partner K. G. Ewers, the property was optioned to General Resources Ltd. who reportedly spent $25,000 mainly in construction of access roads and bulldozer trenching. Gunnex Limited acquired an option on the property in 1968 and completed detailed geochemical and magnetometer surveys. After a short period of inactivity in the area, Selco Exploration Company Limited optioned the property in late 1971, and began an exploration programme with geochemical silt sampling and induced polarization surveying in the vicinity of the main showings.

PHYSIOGRAPHY: The area is in the Okanagan Highland physiographic subdivision of Southern British Columbia, on the Okanagan Valley-Kettle River drainage divide. The region is characterized by a glacially carved rolling landscape surmounted by a few isolated crags.

Elevations range from 4,500 feet on Shuttleworth Creek, in the south part of the map-area, to 6,400 feet on the east summit of Mount Christie, 3.5 miles to the northwest. Maximum relief on the Lynx-Late claim block is about 1,000 feet, with slopes rising from Allendale Lake at approximately 5,100 feet, near the east boundary of the map-area, to a centrally located peak at an elevation of 6,100 feet, a few miles to the west.

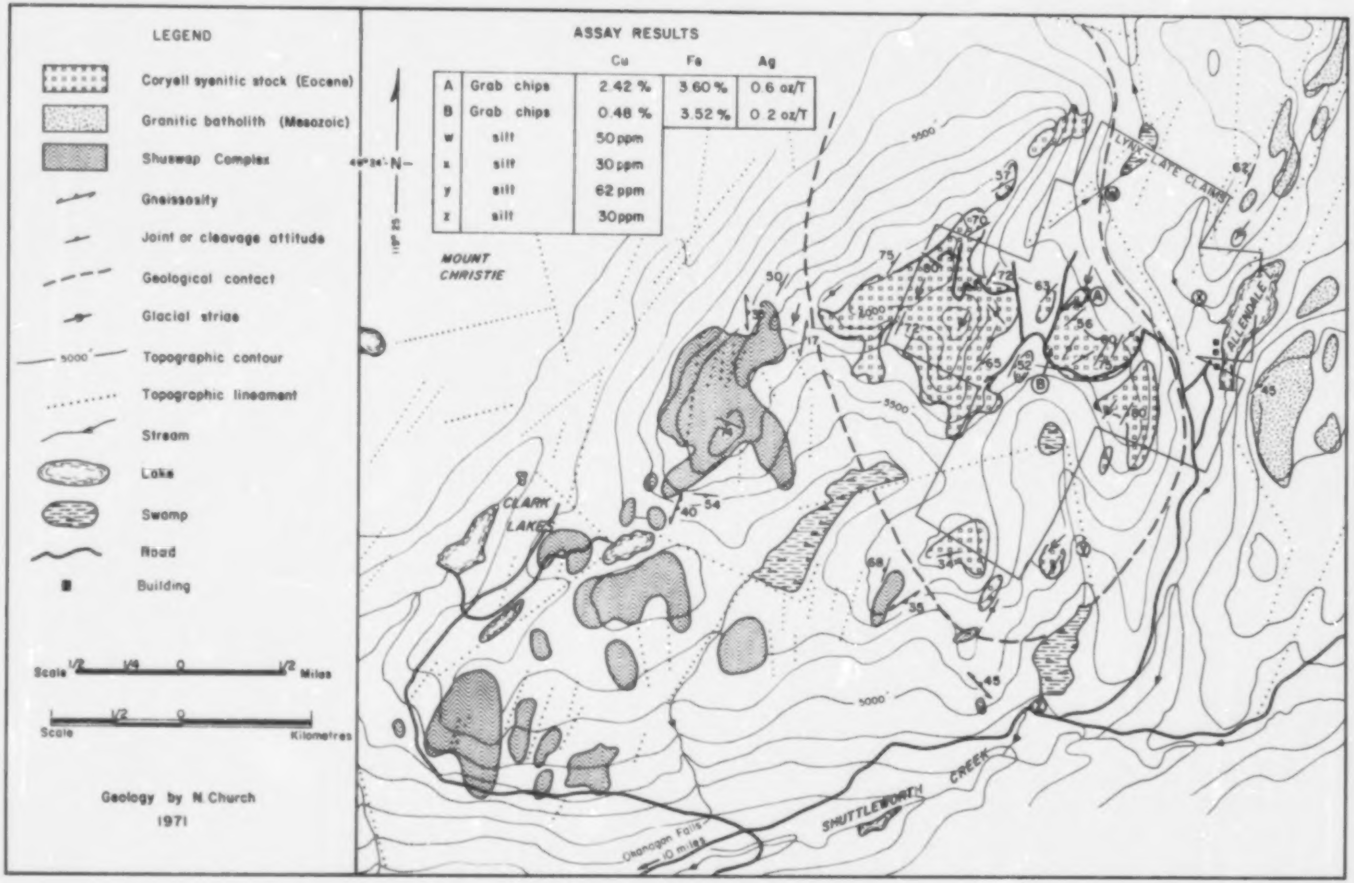
Southwesterly moving Pleistocene glaciers were responsible for the erosion of the broad U-shaped valleys found in the region, such as the one occupied by the most westerly of the Clark Lakes in the west part of the map-area. The mean glacial striae direction was found to be 208 degrees. In typical crag-and-tail fashion, the low rounded hills in the vicinity of the most easterly of the Clark Lakes are strung out on the lee side of the central mountain mass, a glacially resistant syenitic stock.

Except for a small area of sandy glacial outwash and eskers immediately west and northwest of Allendale Lake, the valleys and lower slopes are filled with coarse boulder till. Good bedrock exposures are found mainly on the ridge tops.

The area is timbered with mature pine. Northwood Mills Ltd., a subsidiary of Noranda Mines, Limited, is currently constructing a truck road through the region to connect several logging operations with the company's saw mill at Okanagan Falls.

Owing to dry summer conditions in the Okanagan Valley, many small lakes have been dammed for irrigation control. Some of these, such as Allendale Lake, are stocked with trout and are readily accessible to the general public by a network of gravel and dirt roads.

GENERAL GEOLOGY: The geology of the area features at least three main lithological units and a unique structural setting. A small Coryell-type stock intrudes an apparent point of structural weakness at the junction of the pre-Permian Shuswap gneiss complex and Mesozoic Nelson and Valhalla granitic batholiths. These units crop out on or near the Lynx-Late claim block except for the Nelson granite which is exposed to the west on Mount Christie (Little, 1961).


LEGEND
Coryell syenitic stock (Eocene)
Granitic batholith (Mesozoic)
Shuswap Complex
Gneissosity
Joint or cleavage attitude
Geological contact
Glacial striae
5000
Topographic contour
Topographic lineament
Stream
Lake
Swamp
Road
Building
Scale 1/2 1/4 0 1/2 Miles
Scale 1/2 0 Kilometres
Geology by N. Church
1971
49°24'
N
119°22'
MOUNT CHRISTIE
CLARK LAKES
LYNX-LATE CLAIMS
ALLENDALE
SHUTTLEWORTH CREEK
Okanagan Falls 10 miles
5500
5000
A
B
w
x
y
z
37
62
70
75
80
72
63
56
65
52
30
17
60
75
45
54
40
34
68
35
45

ASSAY RESULTS

		Cu	Fe	Ag
A	Grab chips	2.42 %	3.60 %	0.6 oz/T
B	Grab chips	0.48 %	3.52 %	0.2 oz/T
w	silt	50 ppm		
x	silt	30 ppm		
y	silt	62 ppm		
z	silt	30 ppm		

Figure 51. Geology of the Lynx-Late copper prospect, Allendale Lake area.

The Shuswap Metamorphic Rocks: The Shuswap rocks, found in the area north of Shuttleworth Creek near the Clark Lakes, are medium-grained gneisses composed of alternate layers of light-coloured granite and darker ferromagnesian-rich zones. The layers are generally gently dipping, however, contortions, complex refolds, and augen structures are locally conspicuous. Pegmatite dykes and segregations form a minor part of the formation.

Microscopically the gneissic units consist of subhedral quartz and plagioclase averaging 2 to 3 millimetres in diameter with scattered interstitial biotite, small patches of myrmekite, and irregular ragged concentrations of biotite and green amphibole. The remainder of the rock consists of accessory magnetite, apatite, and sphene, and, less commonly, zoisite. K-feldspar is also accessory and is usually associated with quartz-rich segregations. Locally the rocks display cataclastic textures and evidence of retrograde metamorphism, such as chloritization of the ferromagnesian minerals.

The Valhalla Intrusion: The Valhalla granitic rocks are found to the north and south of Allendale Lake, near the east boundary of the map-area. These are leucocratic, foliated, and fine to medium grained. The rocks display both porphyritic and granoblastic textures with evidence of some crushing and mineral alignment due to cataclasis. Examination of four thin sections shows an average of 40 per cent quartz and 50 per cent feldspar; the accessory minerals are amphibole, biotite, magnetite, apatite, sphene, and allanite, in order of decreasing abundance. Phenocrysts of orthoclase are scattered sparingly throughout the rock; these measure up to 6 millimetres in length and usually carry a few small plagioclase inclusions.

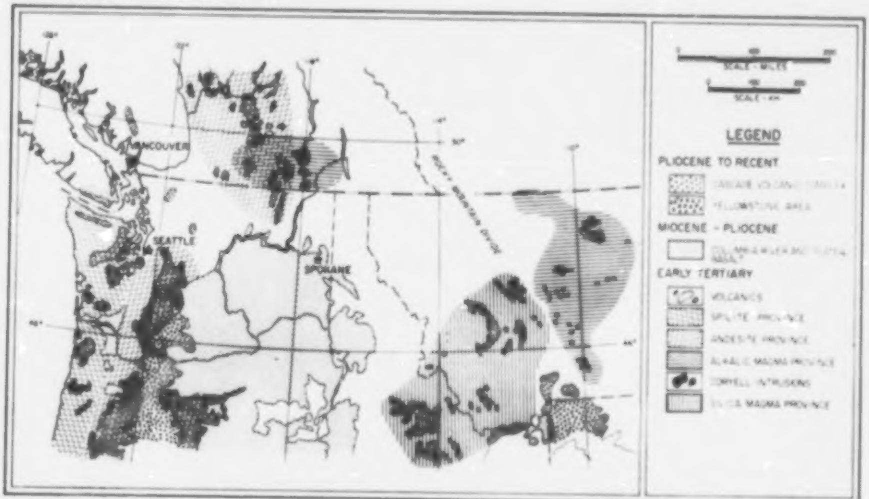


Figure 52. Cenozoic petrographic regions of southern British Columbia and northwestern United States.

The Coryell Intrusion: The Coryell intrusion is a small stock occupying much of the east central part of the map-area (Fig. 51). According to Little (1961) this body is a satellite of the main Coryell batholith centred in the Rossland area to the east. These rocks are typically alkaline and are probably co-magmatic with some of the Early Tertiary volcanic deposits of south central British Columbia (Fig. 52). Various phases of the Coryell batholith were dated by Baadsgaard, *et al.*, (1961) yielding ages of 54 and 58 million years, and more recently similar ages were obtained from the Rossland area by Fyles (personal communication).

The Coryell body found in the map-area is somewhat elongated and kidney-shaped measuring about 3 miles between the north and south contacts and 1.5 miles in width. The intrusion comprises syenite, monzonite, and shonkinitic phases.

The main phase of the intrusion is biotite-pyroxene monzonite. Typically the rock is porphyritic consisting of a spongy framework of chunky alkali feldspar phenocrysts, 1 to 2 centimetres in diameter, with finer grained dark ferromagnesian minerals in the interstices. In polished sections the large feldspar crystals are commonly smoky grey, often having a bluish iridescence; small feldspar grains and the margins of some phenocrysts tend to be milky or cream coloured.

Detailed examination of numerous thin sections shows that most of the feldspar is thermally re-ordered, resulting in exsolution of albite and relatively pure orthoclase blebs from large plates of alkali feldspar. The typical perthitic bleb and antiperthitic checkerboard textures have evidently formed from the unmixing of solitary crystals of high temperature orthoclase and zoned orthoclase-anorthoclase individuals.

The interstitial mafic minerals constitute only about 10 or 15 per cent of the rock, rest being alkali feldspar. Green diopsidic augite and fresh brown biotite are present in about equal amounts as single grains or, more commonly, in aggregates with apatite, magnetite, and sphene. These minerals range from 1 to 6 millimetres in diameter.

The chemical analysis of a representative sample of this rock is comparable with Daly's analysis of the Coryell intrusion near Rossland (Nos. 1 and 2 in the accompanying table of chemical analyses). Of special note, the lime and magnesia content of these rocks is low whereas soda and potash is high. Calculations show that the rocks are undersaturated in silica resulting in normative olivine and some nepheline. Since olivine and nepheline are not found in thin sections it seems most likely that the silica deficiency is taken up by the biotite. Also, it is noted that the general absence of non-perthitic plagioclase is in keeping with the very low normative anorthite content of these rocks.

The syenitic phase of the intrusion is in small pockets in the monzonite. Although no analyses are available, the chemical composition of this rock is probably similar to the phonolites of the White Lake basin (analysis No. 3). Characteristically both the syenite and phonolite contain distinctive rhomb-shaped anorthoclase phenocrysts (Plate VIIIA and Geology, Exploration, and Mining in British Columbia, 1970, p. 396).

A shonkinitic contact phase is exposed along the west and southwest margins of the intrusion where it possibly forms a continuous zone ranging from several hundred to a few thousand feet wide. This phase is relatively enriched in ferromagnesian minerals; it is probably a basic differentiate of the monzonite. The rock is medium grained composed essentially of intermixed anorthoclase or orthoclase perthite, about 80 per cent, and pyroxene, about 15 per cent. Microscopic examination shows that biotite and hornblende are accessory occurring in clots with pyroxene, magnetite, and apatite, or as poikilitic inclusions in large augite grains. Small grains of partly altered nepheline, 1 to one-half millimetre in diameter, are disseminated sparingly throughout the rock and in places form inclusions in anorthoclase crystals.

Pegmatite dykes cut the syenitic and monzonite phases in the north, east central, and south parts of the stock. In contrast with the host rock, the pegmatite is quartz-rich and

Table of Chemical Analyses

	1	2	3	4
Oxides Recalculated to 100 –				
SiO_2	62.96	59.95	56.21	53.42
TiO_2	0.54	0.72	1.02	1.12
Al_2O_3	17.36	18.17	22.27	15.59
Fe_2O_3	1.51	2.11		3.04
			5.19	
FeO	2.03	1.96		5.63
MnO	Tr.	0.06	0.11	0.10
MgO	1.30	1.85	0.97	5.95
CaO	2.00	2.95	4.65	7.44
Na_2O	5.53	6.49	6.47	3.75
K_2O	6.77	5.74	3.09	3.91
	100.00	100.00	100.00	100.00
Oxides as Determined –				
SrO	---	0.13	0.40	0.15
BaO	---	0.31	0.81	0.25
H_2O+		1.30		0.63
	0.30		4.9	
H_2O-		0.01		0.21
CO_2	Tr.	0.05	1.1	---
P_2O_5	0.11	0.39	---	0.75
SO_3	---	0.01	---	---
Molecular Norms –				
Quartz	---	---		---
Orthoclase	39.2	32.8		22.9
Albite	48.8	44.8		33.1
Nepheline	---	7.2		0.2
Anorthite	2.5	3.7		14.1
Wollastonite	2.9	4.3		9.0
Enstatite	2.4	---		---
Ferrosilite	0.9	---		---
Forsterite	0.8	3.7		12.2
Fayalite	0.3	0.4		3.8
Ilmenite	0.7	1.0		1.5
Magnetite	1.5	2.1		3.2

1. A sample of the Coryell batholith from a point north of Record Mountain near Trail, Daly, 1912, p. 359.
2. Monzonite collected at station B, 0.8 mile west of Allendale Lake, analysis by R. S. Young, British Columbia Department of Mines and Petroleum Resources.
3. Rhomb-porphyry phonolite from the White Lake basin, analysis No. 14, Geology, Exploration, and Mining in British Columbia, 1970, p. 401.
4. Shonkonitic contact phase of the Coryell batholith from a railway cut about 2 miles southwest of Coryell, Daly, 1912, p. 361.

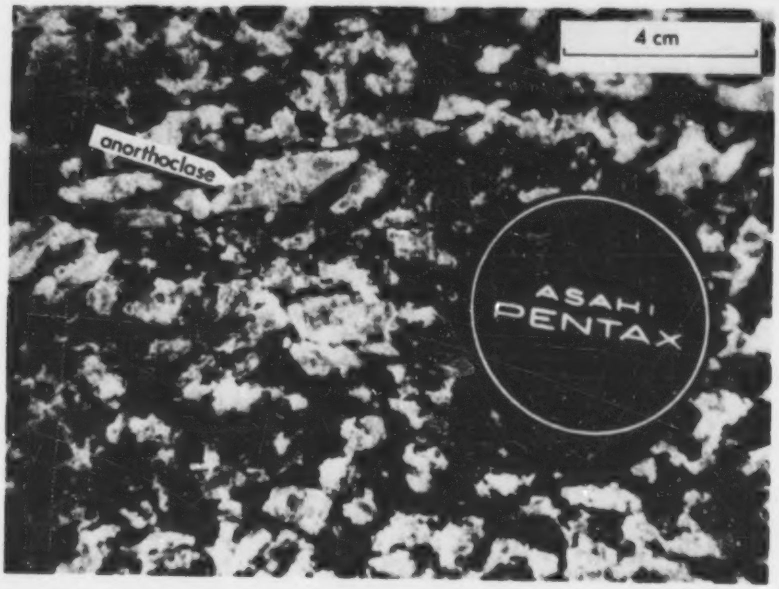

4 cm
anorthoclase
ASAHI PENTAX

Plate VIIIA. Lynx-Late prospect; biotite-rich phase of syenite with rhomb-shaped anorthoclase phenocrysts.

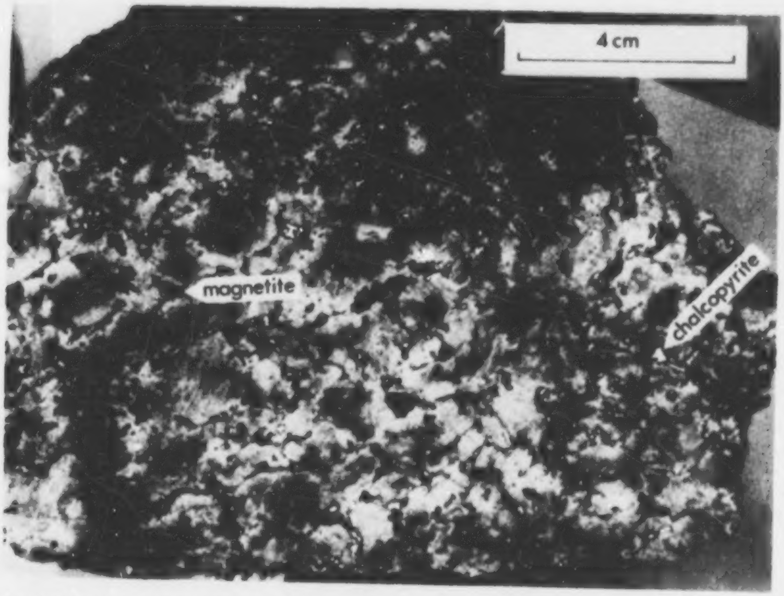

4 cm
magnetite
chalcopyrite

Plate VIIIB. Lynx-Late prospect; feldspathic monzonite with interstitial biotite, magnetite, and chalcopyrite.

much of the feldspar consists of very coarse albite; the main ferromagnesian minerals are biotite and actinolite. Sphene, allanite, and magnetite are accessory minerals found as disseminations or in small clusters.

STRUCTURE: As previously indicated, the Coryell stock is intruded at the three-way contact of the Nelson granite, Valhalla granite, and Shuswap metamorphic complex. This junction of major units was evidently a weak point – possibly a focal point of major fractures which may have facilitated emplacement of the young stock.

The results of a statistical study of fractures and lineaments are shown on Figure 53. On the basis of 75 measurements the main fractures within the Coyrell stock have a mean attitude of 035 degrees dipping 80 degrees southeast. Strong subsidiary fractures strike about 065 degrees dipping 55 degrees northwest and two weaker sets are noted striking roughly 010 degrees dipping 55 degrees northwest and 135 degrees vertical.

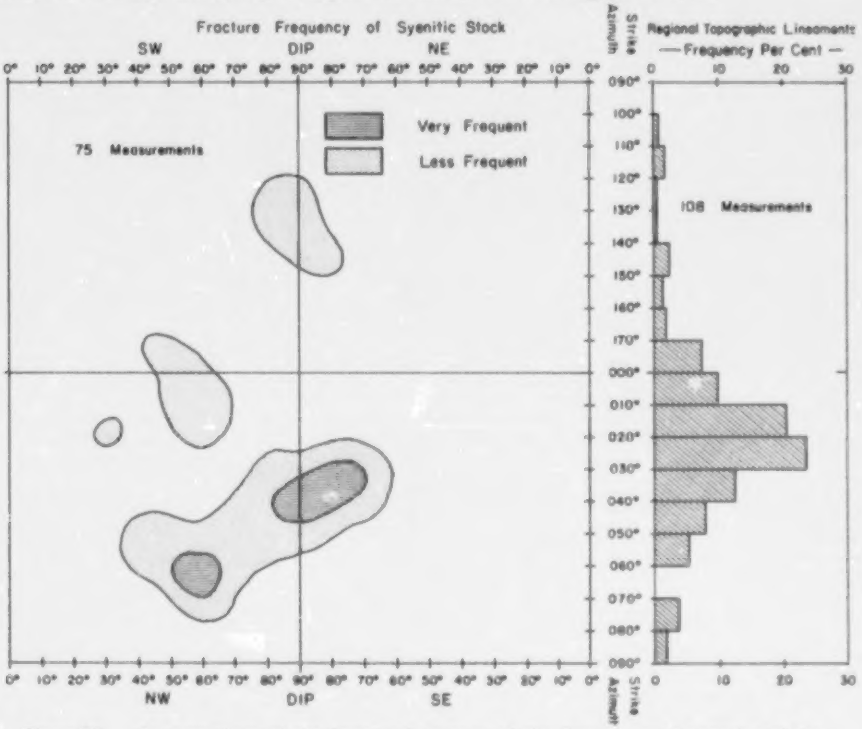


Figure 53. A comparison of the fracture frequency of the Coryell syenitic stock and the direction frequency of regional topographic lineaments in the Allendale Lake area.

Although a wide range of topographic lineaments are observed on airphotos of the region, the only strongly developed trend lies between 010 and 040 degrees. This is probably largely the expression of glacial striations (028 degrees), however, there is a coincidence of lineaments with the strong northeasterly developed fracture system as well as the weaker northerly trending set. The southeasterly trending fractures and the ones striking between 060 and 070 degrees have apparently little topographic expression. It seems possible that these are simply short cross-fractures which are not readily recognized as lineaments owing to limitations in photographic resolution.

MINERALIZATION: Mineralization within the Coryell stock is varied and widely scattered, consisting mainly of sulphide replacements in xenoliths and disseminations in the host monzonite. Although no economic deposit has been discovered, these occurrences are unusual and warrant some detailed description.

The petrography of the main phases of the Coryell intrusion, outlined above, leaves little doubt that these rocks are hypersolvus – that is, the original magma was intruded at high temperature, perhaps as high as 900 degrees centigrade. Rapid cooling and dispersal of volatiles allowed preservation of the perthitic feldspars that characterize these rocks.

It is believed that this early migration of volatiles within the intrusion resulted in the mineralization of the xenoliths. Metalliferous solutions trapped interstitially in the crystal mush of the solidifying magma is possibly responsible for the disseminated sulphide deposits.

The effect of the Coryell intrusion on the surrounding country rocks, including the possibilities of sulphide replacements, is largely unknown because of poor bedrock exposure.

Mineralized Xenoliths: Xenoliths are locally abundant, forming clusters of small fragments or occurring as isolated blocks; they range from a few feet up to 30 feet long. Rounded, partially assimilated aplitic fragments are most common, however angular blocks of dark refractory gneiss are also present (Plate IXA). The source of this foreign debris appears to have been the Valhalla and Shuswap rocks which form the main walls of the stock.

The most digested aplitic xenoliths are best mineralized. These are stained with malachite and azurite; internally they are commonly charged with blebs of bornite and chalcocite (Plate IXB).

At station 'A,' shown on the accompanying map (Fig. 51), mineralized xenoliths in syenite and monzonite are exposed over a length of about 200 feet. According to a company report the best sample from this area contained 0.75 per cent copper and 0.6 ounce per ton silver across 33 feet; other samples taken nearby contained much less copper. A well-mineralized grab sample collected by the writer from the same area contained 2.42 per cent copper, 0.6 ounce per ton silver, and 3.60 per cent iron.

Elsewhere some xenoliths are simply pyritized with no sign of copper.

Disseminated Mineralization: Much of the prospecting in the area has been directed toward discovery of large tonnage disseminated copper sulphide deposits, the xenolith-type mineralization being considered only as an indication of a favourable geological environment.

At station 'B' shown on the accompanying map (Fig. 51), chalcopyrite, and to less extent bornite, are interstitial to large feldspar crystals in the monzonite. The sulphides are distributed over several hundred square feet in concentrations ranging to 2 or 3 per cent of the rock. Close examination of polished samples shows that chalcopyrite is sometimes associated with magnetite and replaces the ferromagnesian silicates, forming grains usually less than 3 millimetres long. Also very small specks of chalcopyrite are visible along hairline cracks peripheral to large feldspar phenocrysts (Plate VIIIB). A typical well-mineralized sample of this rock submitted for assay shows 0.48 per cent copper, 0.2 ounce per ton silver, and 3.52 per cent iron.

Silt Geochemistry: Four silt samples were taken from streams draining the main showings and the east part of the Coryell stock. Analyses yielded unexpectedly low

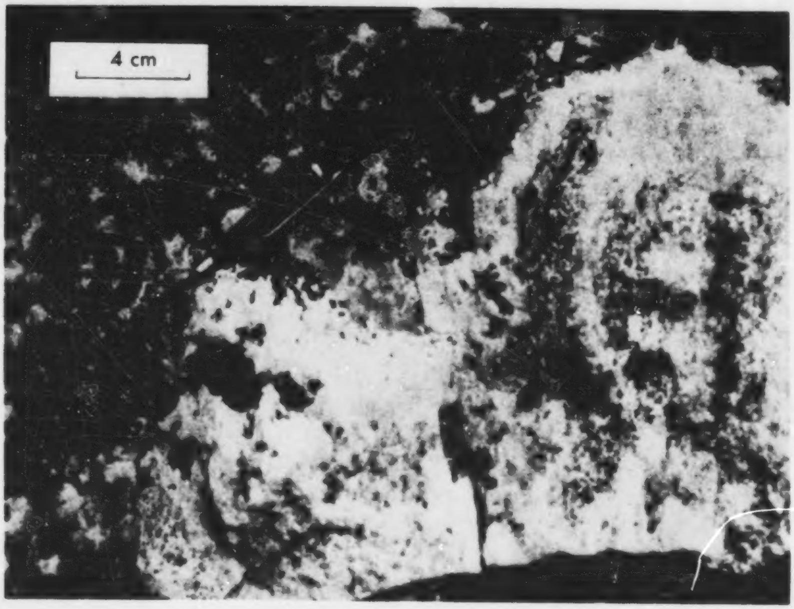


Plate IXA. Lynx-Late prospect; fine-grained, partly resorbed xenolith in syenite.

4 cm
chalcocite
bornite

Plate IXB. Lynx-Late prospect; xenolith with scattered blebs of chalcocite and bornite.

results with a range of 30 to 62 ppm copper. These low results are possibly due to a masking effect of thick till deposits in the valleys.

WORK DONE: Surface geological mapping, 1 inch equals 1,200 feet covering all claims; geochemical soil survey, 150 samples covering Lynx claims; induced polarization survey, 8 line-miles covering Lynx claims.

REFERENCES: Baadsgaard, H., Folinsbee, R. E., and Lipson, J., 1961, *Geol. Soc. America,* Bull., Vol. 72, No. 5, pp. 689-701; Church, B. N., *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 396-402; Daly, R. A., 1912, *Geol. Surv., Canada,* Mem. 38; Little, H. W., 1961, *Geol. Surv., Canada,* Map 15-1961; Mem. 308; *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 217; Assessment Reports 1741, 2363, 3481.

FUKI (No. 6, Fig. G)

LOCATION: Lat. 49° 32.4′ Long. 118° 52.9′ (82E/7W, 10W)
GREENWOOD M.D. At 3,800 feet elevation on Dear Creek, 3.25 miles west of Christian Valley and 11 miles northeast of Beaverdell.

CLAIMS: FUKI 1 to 40, DONEN 1 to 280.

ACCESS: By road from Beaverdell, 13.3 miles.

OWNER: Nissho-Iwai Canada Ltd.

OPERATOR: POWER REACTOR AND NUCLEAR FUEL DEVELOPMENT CORPORATION OF JAPAN (P.N.C.), 1-9-13, Akasaka Minato-ku, Tokyo, Japan.

METAL: Uranium.

DESCRIPTION: Autunite occurs as films on pebbles and in the matrix of a loosely consolidated conglomerate. The conglomerate is overlain by fresh olivine basalt. Eight drill holes cut uranium mineralization ranging from 3 to 10 feet thick and grading 0.01 to 0.15 per cent uranium oxide.

WORK DONE: Trenching, approximately 300 feet on Donen 122, 250, and 252 claims; surface diamond drilling, 17 holes totalling 3,300 feet on Fuki 3, 5 and Donen 93 claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 302; 1970, p. 409; Assessment Reports 2013, 2484, 3135.

JOHN, BEV, MOSH (No. 49, Fig. G)

LOCATION: Lat. 49° 29′-34′ Long. 118° 56′ - 119° 00′ (82E/7W, 10W)
GREENWOOD M.D. Between 4,000 and 5,000 feet elevation along Beaverdell Creek on St. John and Mosher Ridges, 5 miles east of Beaverdell.

CLAIMS: Forty JOHN, 40 BEV, 40 MOSH, 34 SPOUT, 35 DEL, 27 BUCK, 36 MAL, 12 LONEY, 10 HELEN, 14 JACK, 12 COL.

ACCESS: By forestry and logging roads from Beaverdell, 5 miles.

OWNER: DeKALB MINING CORPORATION, 635 Sixth Avenue SW., Calgary 1, Alta.

METALS: Copper, lead, zinc.

DESCRIPTION: Paleozoic volcanic rocks and interbedded limestones have been intruded by Nelson intrusions. Exploration has been concentrated on altered and fractured contact zones.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet covering all claims; induced polarization survey, 25 line-miles covering all claims; geochemical soil survey, 5,000 samples covering all claims; geochemical rock survey, 20 samples covering Mal claims; road construction, 1 mile; surface diamond drilling, three holes totalling 1,400 feet on Del and John claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 409; Assessment Reports 3021, 3022.

GUTS, CRICK (No. 46, Fig. G)

LOCATION: Lat. 49° 25.8′ Long. 118° 53′ (82E/7W)
GREENWOOD M.D. At approximately 4,000 feet elevation on Gutteridge Creek, north to Crick Creek, 2 miles west of Kettle River road, 21 miles northeast of Westbridge.

CLAIMS: GUTS 1 to 18, CRICK 1 to 30, ROBIN HOOD (Lot 989), HOUSTON (Lot 2302), FOURTH OF JULY (Lot 2638), MULDOON (Lot 2369), COLORADO (Lot 2641), IDAHO (Lot 2642), MONTANA Fraction (Lot 2645), MAYFLOWER (Lot 1284), LILLIE MAY (Lot 1285), MONTANA (Lot 2640), 7:30 (Lot 1459), JEWEL (Lot 2785), SUPERIOR (Lot 2786).

ACCESS: By trail from the Kettle Valley road, 4 miles.

OWNER: DeKALB MINING CORPORATION, 635 Sixth Avenue SW., Calgary 1, Alta.

METALS: Copper, lead, zinc, silver.

DESCRIPTION: Andesitic volcanic rocks have been intruded by Nelson granites and syenites. Geochemical and induced polarization anomalies have been mapped parallel to a younger north striking pyritized diorite intrusion. Disseminated copper and silver-bearing veins have been found in the area.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet; geochemical soil survey, 15 line-miles; induced polarization survey, 20 line-miles; surface diamond drilling, two holes totalling 900 feet on the Crick and Guts claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 410; Assessment Report 2951.

MOUNTAIN CHIEF (No. 7, Fig. G)

LOCATION: Lat. 49° 24.5′ Long. 118° 06.2′ (82E/8E)
TRAIL CREEK M.D. One mile south of Renata on Lower Arrow Lake at an elevation of 3,500 feet.

CLAIMS: MOUNTAIN CHIEF (Lot 2393), REN 1 to 11.

ACCESS: Via Highway 3 from Grand Forks and 17 miles by forestry road.

OWNER: I. G. WIEBE, Box 1300, Grand Forks.

METAL: Copper.

DESCRIPTION: Chalcopyrite, bornite, malachite, azurite, and pyrite occur along a limestone-granite contact. Samples from this area contained 0.22 to 2.40 per cent copper.

WORK DONE: Line-cutting and geological and geochemical surveys were done during 1970. Some magnetometer work was done during 1971 on Ren 2, 9, 10 and Mountain Chief.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1927, p. 328; Assessment Reports 930, 3090.

VAN (No. 18, Fig. G)

LOCATION: Lat. 49° 29.2′ Long. 118° 22.6 (82E/8W)
GREENWOOD M.D. On the east side of Burrell Creek, 31 miles north of Grand Forks.

CLAIMS: VAN 1 to 12.

OPERATOR: CRONUS MINERALS LIMITED, Box 820, Grand Forks.

METALS: Copper, zinc.

DESCRIPTION: Low-grade copper-zinc mineralization occurs in altered granitic rocks of Cretaceous age.

WORK DONE: A geochemical survey and trenching were done on Van 1-4 in 1970.

REFERENCE: Assessment Report 3124.

UNION (No. 116, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 33.6′ Long. 118° 21.3′ (82E/9W)
GREENWOOD M.D. The property is 46 miles north of Grand Forks in an area known as the Franklin Camp.

CLAIMS: UNION (Lot 1022s).

ACCESS: A fair gravel road services the property. This road follows the Granby River from Grand Forks.

OWNER: The property is under lease to Mustang Resources Ltd. from Hecla Mining Company of Wallace, Idaho.

OPERATOR: MUSTANG RESOURCES LTD., Box 1155, Grand Forks.

METALS: Gold, silver.

DESCRIPTION:

The Union mine has been idle for many years. Previous operators ran a small mill on the property and left about 200,000 tons of tailings which contained some gold and silver. These tailings occupy several acres of land and vary in depth up to 25 feet. Most of the deposit has been overgrown with small trees and grass.

A batch process cyanide plant was erected near the tailings and a leaching process started using a closed-circuit method. Gold and silver were recovered in a precipitator using zinc dust, but the operation proved uneconomic and was closed after operating for several months.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1942, p. 59; *Geol. Surv., Canada,* Mem. 56, p. 168.

KINGFISHER (No. 45, Fig. G)

LOCATION: Lat. 49° 33.8' Long. 118° 21.4' (82E/9W)
GREENWOOD M.D. At approximately 4,000 feet elevation, between Mount Franklin and Burrell Creek.

CLAIMS: KINGFISHER, DODGE, PAR, MM 4, 6, 8 (formerly MAPLE LEAF).

ACCESS: By road from Grand Forks, 45 miles.

OPERATOR: LA MOTA MT. INDUSTRIES LTD., Box 1165, Fabens, Texas 79838.

METALS: Copper, silver, gold, zinc, lead, cadmium.

DESCRIPTION: Quartz vein ore and disseminated ore occur in feldspar porphyry.

WORK DONE: Surface workings mapped; surface geological mapping, 1 inch equals 400 feet covering two claims; geochemical stream silt survey, 2 line-miles covering MM 4, 6, 8; magnetometer survey, 700 stations covering Par, Dodge, and Kingfisher.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 434.

LOTTIE F (No. 20, Fig. G)

LOCATION: Lat. 49° 37.8' Long. 118° 49' (82E/10W)
GREENWOOD M.D. Approximately 18 miles northeast of Beaverdell and 2 miles northwest of the junction of Kettle River and Rendell Creek.

CLAIMS: LOTTIE F (Lot 2949), STERLINGHAM Fraction (Lot 19015), STAR 1 to 42.

ACCESS: Beaverdell by State Creek forest access road.

OPERATOR: G. V. LLOYD EXPLORATION LTD., 730 Fifth Street SW., Calgary 2, Alta.

METAL: Copper.

DESCRIPTION: Mineralization consists of bornite, chalcopyrite, malachite, and azurite disseminated in metamorphosed limestones and quartzites.

WORK DONE: Ground magnetometer survey in 1970.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1913, p. 159; *Geol. Surv., Canada*, Mem. 79, p. 139; Assessment Report 3005.

DKD (No. 85, Fig. G)

LOCATION: Lat. 49° 35.7' Long. 119° 05.4' (82E/11E)
GREENWOOD M.D. On Hall Creek 1 mile south of Lakevale Railway Siding, 38 miles southeast of Kelowna.

CLAIMS: DKD 1 to 6.

ACCESS: Southeast from Kelowna for 35 miles via highway, then 3 miles south along a narrow four-wheel-drive vehicle bush road.

OPERATOR: HUDSON'S BAY OIL & GAS LTD., 320 Seventh Avenue SW., Calgary, Alta.

METALS: Copper, iron.

DESCRIPTION: Chalcopyrite occurs in fine-grained mafic diorite cut by numerous narrow quartz and feldspar veins. Magnetite is also present and averages 2 to 3 per cent as fine disseminations.

WORK DONE: *Ground magnetometer survey.*
REFERENCE: Assessment Report 3352.

RONDA (No. 76, Fig. E)

LOCATION: Lat. 49° 36.8′-39.7′ Long. 119° 58.5′ - 120′ 02′ (82E/12W)
Report on this property in section 92H/9E.

HED (No. 120, Fig. E)

LOCATION: Lat. 49° 30′-33′ Long. 119° 59′ - 120′ 03′ (82E/12W)
Report on this property in section 92H/9E.

NORTH BRENDA (No. 273, Fig. E)

LOCATION: Lat. 49° 53.6′-56.6′ Long. 119° 57.9′ - 120′ 01.7′ (82E/13W)
Report on this property in section 92H/16E.

JUB (No. 109, Fig. G)

LOCATION: Lat. 49° 56.9′ Long. 118° 48.3′ (82E/15W)
VERNON M.D. At approximately 7,000 feet elevation on Jubilee Mountain, east of St. Margaret Lake.
CLAIMS: JUB 1 to 30.
ACCESS: By road and trail from Rutland, 30 miles.
OPERATOR: WEST COAST MINING & EXPLORATION, 205, 122 East 14th Street, North Vancouver.
WORK DONE: Geochemical soil survey, 18 line-miles covering 15 claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 300 (BS, Pane, Fern).

NELSON 82F

SHEEP CREEK CAMP (No. 122, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 09′ Long. 117° 09′ (82F/3E)
NELSON M.D. The Sheep Creek Camp is situated on Sheep Creek, about 5 miles east of the Salmo-Nelway highway.
CLAIMS: RENO (Lot 12684), QUEEN (Lot 1076), BURLINGTON (Lot 1079) Crown-granted and several recorded claims.
ACCESS: Via the Sheep Creek mining road from the Salmo-Nelway highway.
OWNERS: J.A.C. ROSS, D. J. ENDERSBY, and others.
METALS: Gold, silica (production shown in Table 1, *see* Burlington and Reno).
WORK DONE: Silica rock, containing small amounts of gold, was hauled from several old mine dumps on Sheep Creek to the Trail smelter.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 441.

INVINCIBLE, EAST DODGER (No. 123, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 06.8′ Long. 117° 13.2′ (82F/3E)
NELSON M.D. On Iron Mountain, adjacent to the Jersey mine and campsite.
CLAIMS: The DODGER (Lot 12083) and INVINCIBLE (Lot 12084) Crown-granted claims and many adjoining claims.
ACCESS: Via 4 miles of good mining road from the Salmo-Nelway highway.
OWNER: CANADIAN EXPLORATION LIMITED, 700, 1030 West Georgia Street, Vancouver 5; mine office, Salmo.
METAL: Tungsten (production shown in Table 1).
WORK DONE:

During 1970, the Invincible mine was developed by a decline trackless haulageway, and stopes in the old East Dodger mine were readied for production. A small amount of ore was treated in a newly constructed mill contained within the old Emerald mill building.

During 1971, a 6-foot diameter borehole was driven from the surface to the Invincible decline to provide ventilation and a second adit. This raise, 675 feet long, was driven in 29 working days. A prefabricated steel manway was installed in it in an additional 10 days. The following table outlines other work done:

	Invincible	East Dodger
Ore mined, approximately	72,000 tons	100,000 tons
Waste removed	40,820 tons	16,702 tons
Drifting	6,578 feet	5,218 feet
Raising	1,156 feet	118 feet
Diamond drilling	23,190 feet	10,490 feet

Ore mined graded around 0.60 per cent tungstic oxide.

The mill was operated continuously at about 500 tons per day, but its capacity was increased to around 600 tons per day by year end. Concentrates are treated by acid leaching and roasting to remove unwanted impurities.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 441.

REEVES MacDONALD MINE (No. 125, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 01.3′ Long. 117° 21.9′ (82F/3W)
NELSON M.D. On the north side of the Pend-d'Oreille River, 4 miles west of Nelway.
CLAIMS: About 75 recorded and Crown-granted claims at Remac.
ACCESS: Via 4 miles of good road from Nelway.
OWNER: REEVES MacDONALD MINES LIMITED, Remac.
METALS: Lead, zinc (production shown in Table 1).
WORK DONE:

The Reeves MacDonald mine started production in late 1949 and has operated continuously since then, treating about 1,000 tons of ore per day. In recent years, the ore reserves have dropped and 1969 and 1970 were primarily years of salvage.

The last ore produced from the Reeves was hoisted in July 1971. Exploration is continuing on the 240 level where diamond drilling has been in progress for over a year, but no new ore discoveries have been reported.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 444.

ABLE (No. 32, Fig. G)

LOCATION: Lat. 49° 01.8′ Long. 117° 22′ (82F/3W)
NELSON M.D. At an elevation of 2,200 feet on the Salmo River, one-half mile north of Remac.

CLAIMS: ABLE, BAKER, CHARLIE, DOG, EASY, FOX, GEORGE, HOW.

ACCESS: By secondary road from Remac.

OWNER: REEVES MacDONALD MINES LIMITED, Remac.

METALS: Lead, zinc.

DESCRIPTION: Galena and sphalerite occur in fractures in zones of dolomite in the Reeves limestone.

WORK DONE: Induced polarization and geochemical surveys were done during 1970. In 1971, 100 feet of trenching was done on the Baker claim, and one-half mile of road was built north from Remac.

REFERENCE: Assessment Report 2943.

ANNEX (No. 124, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 00.8′ Long. 117° 22.3′ (82F/3W)
NELSON M.D. On the south side of the Pend-d'Oreille River, south of Remac.

CLAIMS: About 40 recorded and Crown-granted claims which adjoin the Reeves MacDonald holdings along the Pend-d'Oreille River.

ACCESS: Via mining road from Remac.

OWNER: REEVES MacDONALD MINES LIMITED, Remac.

METALS: Lead, zinc (production shown in Table 1).

WORK DONE: The Annex mine has been developed by a shaft and several levels. Sub-levels are driven at 30-foot intervals and slashed to the ore limits by use of rubber-tired, air-powered loaders. The resulting pillars are long-hole drilled for eventual blasting. During the year development work done amounted to 9,461 feet and test-holing and diamond drilling totalled 32,863 feet. The grade of ore in the Annex mine is higher than that found on the north side of the river.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 444.

NESS (No. 95, Fig. G)

LOCATION: Lat. 49° 03.7′ Long. 117° 22.5′ (82F/3W)
NELSON M.D. At elevations of 4,100 to 4,800 feet near Limpid Creek, 2 miles north of Remac.

CLAIMS: NESS 1 to 8.

ACCESS: Via four-wheel-drive vehicle road along Limpid Creek from Remac, 2 miles.

OWNER: ABELLA RESOURCES LTD., 534, 789 West Pender Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Chalcopyrite occurs in quartz veins in limestone on Ness 2.

WORK DONE: Geological mapping, 1 inch equals 200 feet; 285 soil samples collected.

REFERENCE: Assessment Report 3392.

COXEY MINE (No. 120, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 05.3′ Long. 117° 49.6′ (82F/4W)
TRAIL CREEK M.D. On the west slope of Red Mountain, about 2 miles west of Rossland.

CLAIMS: Eighteen claims and two mineral leases. The principal claim is the COXEY Crown grant (Lot 1221).

ACCESS: Via a good road which leaves the Cascade highway about 1 mile west of Rossland.

OWNER: CONSOLIDATED CANADIAN FARADAY LTD. (Red Mountain Mines Division), 1600, 100 Adelaide Street West, Toronto, Ont.

METAL: Molybdenum (production shown in Table 1).

WORK DONE: Open-pit mining has been continuous for several years in various pits. Known ore is found near the surface and requires little waste removal but the individual pits are small. Mined ore has graded around 8 to 10 pounds of molybdenite per ton. Mining and milling were continuous during the year, but ore reserves dropped to almost nil at year end.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 436.

MIDNIGHT (No. 121, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 04.5′ Long. 117° 50′ (82F/4W)
TRAIL CREEK M.D. Two miles west of Rossland.

CLAIMS: Thirteen recorded and Crown-granted claims, including the MIDNIGHT (Lot 1186).

ACCESS: Via 1.5 miles of good road which leaves the Cascade highway one-half mile from the Rossland junction.

OWNER: Tull Mines Ltd.

OPERATOR: FEDERATED MINING CORPORATION LTD., 3122, 510 West Hastings Street, Vancouver 2.

METAL: Gold.

WORK DONE: The Midnight mine has been developed by several adits and a shaft. Nearly all production has been shipped to the Trail smelter as crude ore. During 1969 and 1970, a small gravity mill was erected on the property. The mill operated briefly early in 1971 but no production was reported.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 437.

KAY (No. 27, Fig. G)

LOCATION: Lat. 49° 05.8′ Long. 117° 52.5′ (82F/4W)
TRAIL CREEK M.D. Four miles northwest of Rossland near Record Mountain.

CLAIMS: KAY 1 to 8.

ACCESS: Via Highway 22 and secondary road.

OWNER: SALEM MINES LTD., 122, 845 Hornby Street, Vancouver 1.

WORK DONE: A geochemical and electromagnetic survey was done on Kay 8.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 315; Assessment Reports 2045, 3097.

BM (No. 28, Fig. G)

LOCATION: Lat. 49° 16.6' Long. 117° 55' (82F/5W)
TRAIL CREEK M.D. On Blueberry Creek, approximately 15 miles west of Kinnaird.
CLAIMS: BM 1 and 2.
ACCESS: By road from Kinnaird.
OWNER: MICHAEL SAWCHENKO, Box 215, Castlegar.
WORK DONE: Line-cutting.
REFERENCE: Assessment Report 3063.

EUPHRATES (No. 43, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 23.1' Long. 117° 12.5' (82F/6E)
NELSON M.D. The property straddles the Nelson-Ymir highway about 9 miles south of Nelson.
CLAIMS: A 1 to 8 (covering the Euphrates property); PIA 1 to 10 (covering the adjoining Golden Age property); EVA 1 to 9; MIKE 1 to 8.
ACCESS: Via roads and trails from the Nelson-Ymir highway.
OWNER: ROBERT MINES LTD., 4793 Commercial Drive, Vancouver 12.
METALS: Gold, silver, lead, zinc, tungsten.
DESCRIPTION: Northwesterly trending quartz veins have been mined intermittently, mainly at the Euphrates and the Golden Age mines. Mineralization occurs in andesite and augite porphyry.
WORK DONE: Geochemical, magnetic, electromagnetic, and self-potential surveys were continued from the 1970 programme. The main adit of the Golden Age was cleaned out, new ladders were installed, 1,000 feet of 2-inch airline was laid, and the face was advanced 35 feet to a total of approximately 1,460 feet. Samples of quartz material from this new working contain some gold, silver, and tungsten. The underground work was augmented by a mapping and sampling programme.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 439; Assessment Reports 2598, 3303, 3304, 3719.

SILVER (No. 24, Fig. G)

LOCATION: Lat. 49° 27' Long. 117° 16' (82F/6)
NELSON M.D. At elevations of 2,500 to 5,000 feet west of Cottonwood Creek, 3 miles southeast of Nelson.
CLAIMS: SILVER 1 to 10, JOHN 1 to 14, JIM 1 to 20, SAM 1 to 10, AG 1 to 88.
ACCESS: Via Highway 6 and 1.5 miles of dirt road.
OWNER: COP-MAC MINES LTD., 1334 West Pender Street, Vancouver 5.
METALS: Silver, lead, zinc, copper.
DESCRIPTION: The claims are underlain by basic volcanic rocks to the east and diorites and biotite schist to the west. Mineralization consists of bands of galena, sphalerite, pyrite, chalcopyrite in schistose limestone.

WORK DONE: Electromagnetic and geochemical surveys were made in 1970 on Silver 1-10, Jim 3-20, John 5, 7, 9, 11, and Sam 1-4, 7-10 claims; 1,140 samples were collected.

REFERENCE: Assessment Report 3091.

SULLIVAN MINE (No. 150, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 42′ Long. 116° 00′ (82F/9E)
FORT STEELE M.D. The Sullivan mine and concentrator are located within the city limits of Kimberley, the mine being about 2 miles north of the city centre and the mill about 2 miles south of the city centre.

CLAIMS: The holdings include 680 Crown-granted claims and fractions and 562 recorded claims.

ACCESS: Via several roads from the highway at Kimberley.

OWNER: COMINCO LTD., 1199 West Pender Street, Vancouver 1; mine office, Trail.

METALS: Silver, lead, zinc (production shown in Table 1).

WORK DONE:

The concentrator treated 2,005,301 tons of Sullivan ore and about 21,531 tons of Pine Point ore during 235 operating days.

Development amounted to 33,500 feet and exploratory drilling amounted to 13,300 feet. Backfill totalled 587,047 cubic yards of float, rock, and cave material.

The ventilation system handled about 950,000 cubic feet per minute of fresh air, most of which was heated by natural gas during cold weather.

Several interesting technical developments were put into general use, including the following: A remote-controlled, pneumatically operated centralizer and safety-lock combination has been applied to percussion longhole drills, mainly to improve safety; grouting by gravity placement methods of rock backfill via boreholes was used to reduce ore dilution; an improved method of emptying and cleaning cars was implemented to speed up the process and reduce dust production; a mobile spray system for washing walls in main haulage drifts was developed to control dust; noise cutback programmes were promoted to conserve hearing faculties of employees; studies to control mine effluent from polluting Mark Creek were continued during the year; slurry-blasting techniques were advanced to a stage where small-diameter vertical holes were being successfully charged and blasted.

The company continued its excellent work in furthering first-aid and mine-rescue training.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 473.

POLARIS (No. 105, Fig. G)

LOCATION: Lat. 49° 36.8′ Long. 116° 01′ (82F/9E)
FORT STEELE M.D. Between 3,000 and 5,000 feet elevation at Pitt Creek south of St. Mary River, 12 miles northwest of Cranbrook.

CLAIMS: POLARIS, totalling 131.

ACCESS: By road from Cranbrook, 15 miles.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METALS: Lead, zinc.

DESCRIPTION: Clastic rocks of the Aldridge Formation were explored for possible occurrence of massive sulphide mineralization.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet; geochemical soil survey, 185 samples; magnetometer survey, 8.75 line-miles; road construction, 1 mile; trenching, 1,000 feet on Polaris 105; stripping, 7 square chains on Polaris 33, 50, 72, 103; surface diamond drilling, four holes totalling 2,899 feet on Polaris 33, 72, 103.

REFERENCE: Assessment Report 3250.

UNITED COPPER (No. 99, Fig. G)

LOCATION: Lat. 49° 43.5' Long. 116° 36' (82F/10E)
SLOCAN and FORT STEELE M.D. Between 6,500 and 7,200 feet elevation at Cogle Pass, 12 miles northeast of Crawford Bay.

CLAIMS: UNITED COPPER, UNITED COPPER 2, 3, 9 to 12, LIMESTONE 3 to 8, 10 to 16.

ACCESS: By road from Crawford Bay, 15.5 miles.

OPERATOR: COGLE COPPER LIMITED, 704 Railway Street, Nelson.

METALS: Copper, silver, lead, zinc.

DESCRIPTION: Quartz veins carrying chalcopyrite, sphalerite, galena, pyrite, and pyrrhotite occur along shear zones and in the foliation of chlorite schist. Bornite with silver minerals occurs in limestone and quartzite.

WORK DONE: Trenching, 22 by 17 by 10 feet on United Copper 2; stripping, 30 by 25 by 14 feet on United Copper 2 and Limestone 3; surface diamond drilling, three holes totalling 166 feet on United Copper 2.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 461.

HUMBOLT (No. 56, Fig. G)

LOCATION: Lat. 49° 45.2' Long. 116° 38' (82F/10E, 15E)
SLOCAN and FORT STEELE M.D. At approximately 6,400 feet elevation on Spring Creek in Crawford Creek basin, 6 miles east of Riondel.

CLAIMS: HUMBOLT (Lot 2015), SAILOR BOY (Lot 2016), JOAN 1 to 71, SILVER 5 to 8, HOPE 1 to 4, BAREFOOT 1 and 2, DARI 1 and 2, ELLEN 1 to 4, GEM Fraction, HOPE 2 to 6, VI 1 to 8.

ACCESS: By road from Crawford Bay, 14 miles.

OWNER: ROSE PASS MINES LTD., 630A – 17th Avenue SW., Calgary 3, Alta.

METALS: Silver, lead, zinc.

DESCRIPTION: Quartz veins in black argillaceous rocks contain galena, sphalerite, chalcopyrite, stannite, and pyrite.

WORK DONE: Surface diamond drilling, three holes totalling 612 feet on Barefoot 2, Humbolt, and Vi 1.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 461.

SCRANTON (No. 145, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 47.3' Long. 117° 03.6' (82F/14E)
SLOCAN M.D. In Kokanee Glacier Park, near the head of Pontiac Creek, a tributary of Woodbury Creek from the north.

CLAIMS: SCRANTON (Lot 7452), GRANDVIEW (Lot 6279), and several other Crown-granted and recorded claims.

ACCESS: Via 11 miles of good mining road along Woodbury Creek from the Ainsworth-Kaslo highway.

OWNER: SILVER STAR MINES LTD., 400, 837 West Hastings Street, Vancouver 2.

METALS: Gold, silver, lead, zinc.

WORK DONE: Active mining and exploration ceased in 1970, and the mill at Ainsworth was shut at the same time. In the fall of 1970 one of the main bridges on the mining road collapsed, leaving the mine isolated. The company undertook no work in 1971, but another company constructed a new bridge across Woodbury Creek and thus provided access to the Scranton workings.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 459.

SIXTEEN TO ONE (No. 143, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 54.9' Long. 117° 03.9' (82F/14E)
SLOCAN M.D. About 1 mile north of the confluence of Carlyle and Keen Creeks, at an elevation of about 4,000 feet.

CLAIMS: SIXTEEN TO ONE (Lot 4901) and several adjoining Crown-granted and recorded claims.

ACCESS: Via the Keen Creek mining road from the Kaslo-New Denver highway.

OWNER: MUKLUK MINING LTD., 302, 535 West Georgia Street, Vancouver 2.

METALS: Silver, lead.

WORK DONE: Underground work started in 1970 was abandoned in 1971 in favour of stripping to locate extensions of the Sixteen to One vein. The company reported success in this exploration.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 458.

FLINT MINE (No. 142, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 55.7' Long. 117° 06.1' (82F/14E)
SLOCAN M.D. The property is near the head of Carlyle (Dago) Creek, at an elevation of 5,250 feet.

CLAIMS: The FLINT 3 recorded claim covers the main workings of the Flint mine.

ACCESS: Via a jeep road which follows Carlyle Creek.

OWNER: MUKLUK MINING LTD., 302, 535 West Georgia Street, Vancouver 2.

METALS: Silver, lead, zinc.

WORK DONE: A rough jeep road, constructed in 1970, was improved and extended to the Gray Eagle (Lot 4539) Crown grant. Stripping of overburden was done along extensions of the Flint and Gray Eagle veins, but very little mineralization was found.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 457.

INDEX (No. 152, Fig. G)

LOCATION: Lat. 49° 51' Long. 117° 08' (82F/14E)
SLOCAN M.D. At approximately 4,100 feet elevation on the east side of Keen Creek, 7.5 miles south of the Kaslo-New Denver highway at a point 15 miles southwest of Kaslo.
CLAIMS: WHITEY 1 to 5, DEX 1 to 5.
ACCESS: By road from Kaslo, 14.5 miles.
OWNER: ANDEX MINES LTD., 543 Granville Street, Vancouver 2.
METALS: Silver, lead, zinc.
DESCRIPTION: Fissure veins and replacement mineralization occur in folded metasedimentary rocks near granite.
WORK DONE: Surface workings mapped; surface geological mapping, 1 inch equals 100 feet covering Dex 1 and 2; trenching, 36 feet on Dex 2.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1919, p. 121; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 333 (Andex); *Geol. Surv., Canada*, Mem. 184, p. 223.

RECO, BLUEBIRD (No. 57, Fig. G)

LOCATION: Lat. 49° 59.4' Long. 117° 11' (82F/14E)
SLOCAN M.D. Between 4,000 and 7,000 feet elevation on Reco Mountain, 1 miles northeast of Cody.
CLAIMS: Sixty-eight including BLUEBIRD (Lot 540) and NOBLE 5 (Lot 468).
ACCESS: By road from New Denver, 8 miles.
OWNER: RECO SILVER MINES LIMITED, 201, 535 Howe Street, Vancouver 1.
METALS: Silver, lead, zinc.
WORK DONE: One-half mile of access road was built to a large slide and the Purcell vein.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 453.

SILMONAC (MINNIEHAHA) (No. 135, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 58.3' Long. 117° 15.2' (82F/14W)
SLOCAN M.D. Sixty-two Crown-granted claims and three mineral leases. Main workings are on the MINNIEHAHA (Lot 3170).
ACCESS: Via mining roads from Sandon.
OWNER: Silmonac Mines Ltd.
OPERATORS: KAM-KOTIA MINES LIMITED and BURKAM MINES LTD., New Denver.
METALS: Silver, lead, zinc (production shown in Table 1).
WORK DONE:

A second exit from the mine was completed early in 1971 to satisfy requirements of the *Mines Regulation Act*, and to provide a positive method of ventilation.

The mill operated continuously during the year, treating about 100 tons per day.

Exploration, which was held up early in 1971, was accelerated during the latter part of 1971 with a view to boosting the ore reserves of the mine following disappointments with the eastern ore sections.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 452.

HEWITT (No. 132, Fig. G)

LOCATION: Lat. 49° 56' Long. 117° 18' (82F/14W)
SLOCAN M.D. Between 3,600 and 5,300 feet elevation on the south side of Silverton Creek, 3 miles east of Silverton.

CLAIMS: HEWITT (Lot 4440), VAN ROI, EL CAMINO, totalling 45.

ACCESS: By mine road from Silverton, 5 miles.

OWNER: Kopan Developments Limited.

OPERATOR: SURFSIDE EXPLORATIONS LTD., 882 Maple Street, White Rock.

METALS: Silver, lead, zinc.

DESCRIPTION: Silver-lead-zinc mineral shoots occur in structurally controlled traps along lodes or shear zones which occur within the Slocan sedimentary rocks.

WORK DONE: Surface workings mapped; surface geological mapping, 1 inch equals 200 feet covering Hewitt, Van Roi, and El Camino claims.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 450.

LUCKY THOUGHT (No. 132, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 56.3' Long. 117° 18' (82F/14W)
SLOCAN M.D. At approximately 3,800 feet elevation, 4.5 miles east of Silverton.

CLAIMS: Nine recorded claims, AU covering ground formerly held as Crown-granted claims, including the LUCKY THOUGHT (Lot 10636).

ACCESS: Via the Hewitt mine road, 4.5 miles from Silverton.

OPERATOR: SURFSIDE EXPLORATIONS LTD., 882 Maple Street, White Rock.

METALS: Silver, lead, zinc (production shown in Table 1).

WORK DONE: Mapping and stripping done on the Au 1 claim in 1969 disclosed a vein which is probably an extension of the Lucky Thought vein explored by old workings down the hill from the stripped area. An open-pit mine was developed to extract ore from the Lucky Thought vein. Ore was shipped mainly to the Red Deer Valley Coal Company mill at Silverton, but some crude ore was shipped directly to the Trail smelter. The operation was closed about mid-year.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 451.

SILVER BELL (No. 134, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 58.7' Long. 117° 18.3' (82F/14W)
SLOCAN M.D. About 1 mile north of Idaho Peak, at an elevation of 7,000 feet.

CLAIM: SILVER BELL (Lot 1887).

ACCESS: Via the Idaho Peak road to Alamo Basin and the Silver Bell workings.

OWNER: Swim Lake Mines Ltd.

OPERATOR: W. WINGERT, New Denver.

METALS: Silver, lead, zinc.

WORK DONE: The main level of the mine was advanced about 150 feet and subsequently three diamond-drill holes were put in to test for mineralized structure. Core recovery was poor and thus results were inconclusive.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 452.

WESTMONT **(No. 131, Fig. G)** By P. E. Olson

LOCATION: Lat. 49° 50' Long. 117° 19.4' (82F/14W)
SLOCAN M.D. On the north side of Enterprise Creek, about 4 miles from the Slocan-Silverton highway.

CLAIMS: WESTMONT (Lot 8929) and eight other adjoining Crown-granted claims.

ACCESS: Via mining roads along the north side of Enterprise Creek.

OWNER: EASTMONT SILVER MINES LTD., 101, 535 Thurlow Street, Vancouver 5.

METALS: Silver, lead, zinc (production shown in Table 1).

WORK DONE: Some raising and stoping were done between the No. 5 and No. 4 levels of the mine, and a small shipment of ore was sent to the Trail smelter.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 326.

ENTERPRISE **(No. 131, Fig. G)** By P. E. Olson

LOCATION: Lat. 49° 49.3' Long. 117° 19.5' (82F/14W)
SLOCAN M.D. On Enterprise Creek, about 4 miles from the Slocan-Silvert highway.

CLAIMS: ENTERPRISE (Lot 1014) and other Crown-granted claims.

ACCESS: Via mining road along the north side of Enterprise Creek.

OWNER: Enterprise Silver Mines Ltd.

OPERATORS: W. WINGERT and L. FRIED, New Denver.

METALS: Silver, lead, zinc (production shown in Table 1).

WORK DONE: Two independent leases were worked between 5 and 6 levels. Ore mined was shipped to the Trail smelter.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 325.

ARLINGTON **(No. 127, Fig. G)** By P. E. Olson

LOCATION: Lat. 49° 47.4' Long. 117° 21.8' (82F/14W)
SLOCAN M.D. The Arlington mine is on the north side of Springer Creek, about 7 miles from Slocan. The camp and main workings are at an elevation of 5,200 feet.

CLAIMS: Sixteen Crown-granted and recorded claims, including the ARLINGTON (Lot 2416).

ACCESS: Via the Springer Creek mining road which leaves the Slocan-Nelson highway one-half mile south of Slocan.

OWNER: ARLINGTON SILVER MINES LTD., 809, 525 Seymour Street, Vancouver 2.

METALS: Silver, lead, zinc (production shown in Table 1).

WORK DONE: In recent years, the company has explored extensively on A and B levels where some small ore zones were located, mostly close to areas worked during the early days of the mine. Stoping and shipping of crude ore were carried on from the previous year, but the operation proved uneconomical and was shut early in 1971.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 448.

OTTAWA (No. 126, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 47.4′ Long. 117° 24′ (82F/14W)
SLOCAN M.D. On the south side of Springer Creek, 5 miles from Slocan.

CLAIMS: The OTTAWA (lot 4968) and 10 other claims.

ACCESS: Via the Springer Creek mining road, which leaves the Slocan-Nelson highway one-half mile south of Slocan.

OWNER: Slocan Ottawa Mines Ltd.

OPERATOR: PAMICON DEVELOPMENTS LTD., c/o Mike Poznikoff, Slocan.

METAL: Silver (production shown in Table 1).

WORK DONE: Several cars of sorted ore were shipped to the Trail smelter.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 448.

HOMESTAKE (No. 129, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 49.2′ Long. 117° 25′ (82F/14W)
SLOCAN M.D. On the north side of Memphis Creek, about 1 mile east of the Slocan-Silverton highway, at an elevation of 4,000 feet.

CLAIM: HOMESTAKE (Lot 15283).

ACCESS: Via 2 miles of jeep road from the Slocan-Silverton highway.

OWNER: C. THICKETT AND ASSOCIATES of Slocan have a lease on the property.

METALS: Gold, silver (production shown in Table 1).

WORK DONE: Sporadic shipments of ore have been made from this mine in recent years, and some exploration has been done, but no new ore has been found. A small amount of sorted ore was taken from the lower level and shipped to the Trail smelter. This shipment took the last of known ore on the claim and the mine was shut.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 325; 1970, p. 449.

JOYCE (No. 130, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 49.2′ Long. 117° 25.1′ (82F/14W)
SLOCAN M.D. On the north side of Memphis Creek, immediately north of the Homestake Crown grant (Lot 15283).

CLAIMS: JOYCE, JOYCE 3.

ACCESS: Via a jeep road from the Slocan-Silverton highway.

OWNER: C. THICKETT, Slocan.

METALS: Gold, silver (production shown in Table 1).

WORK DONE: Bulldozer stripping uncovered a pocket of high-grade gold-silver ore which was mined out and shipped to the Trail smelter.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 249 (Homestake).

REPUBLIC (No. 128, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 48′ Long. 117° 27′ (82F/14W)
SLOCAN M.D. Two miles north of Slocan, near the head of Climax Creek.

CLAIMS: REPUBLIC NO. 2 (Lot 5498) and eight adjoining Crown-granted claims.
ACCESS: Via jeep road along Climax Creek from Slocan.
OWNER: Dennis Vigouret.
OPERATOR: DENU MINES & DEVELOPMENT LTD., 5316 Fleming Street, Vancouver 15.
METAL: Gold (production shown in Table 1).
WORK DONE: The Republic has been prospected since the turn of the century with occasional shipments being made to the Trail smelter, the last one in 1952. The Climax Creek road was repaired and extended to the Republic inclined shaft where a small shipment of selected ore was obtained from dump rock and sent to the Trail smelter.
REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1952, p. 181.

EEL (No. 55, Fig. G)

LOCATION: Lat. 49° 53.6′ Long. 116° 32.8′ (82F/15E)
FORT STEELE M.D. Between 6,500 and 8,000 feet elevation north of Calamity Creek, a tributary of Dewar Creek.
CLAIMS: EEL 1 to 8.
ACCESS: By helicopter from Cranbrook, 40 miles.
OWNER: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary, Alta.
METAL: Molybdenum.
DESCRIPTION: Molybdenite occurs in fractures and veins along the edge of the Fry Creek batholith.
WORK DONE: Geochemical silt and soil survey covering the entire property.

BLUEBELL MINE (No. 146, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 45.7′ Long. 116° 51.5′ (82F/15W)
SLOCAN M.D. The mine is on the east side of Kootenay Lake, about 6 miles north of Kootenay Bay.
CLAIMS: KOOTENAY CHIEF (Lot 11), COMFORT (Lot 12), BLUEBELL (Lot 50), and many other Crown-granted and recorded claims.
ACCESS: Via 6 miles of good road from Highway 3 near Kootenay Bay.
OWNER: COMINCO LTD., Trail; mine office, Riondel.
METALS: Silver, lead, zinc (production shown in Table 1).
WORK DONE:

Mining began at the Bluebell mine in the 1880's but was rendered difficult because several interests owned the various parts of the mine, the Kootenay Chief, the Bluebell, and the Comfort zones. Cominco was successful in acquiring full ownership in 1947, began serious development of the mine in 1948, and began production in 1952. The mine ran continuously until December 1971, when production was halted due to depletion of ore reserves. Since going into full production, the mine produced more than 4.75 million tons of ore.

The following statistics pertain to 1971:

Corehole drilling	26,979 feet
Development	11,316 feet
Ore produced	260,343 tons
Ventilation capacity	250,000 cubic feet per minute
Pumping requirements	4,700 gallons per minute
Tailings backfill	80,000 tons

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 460.

ATTENDED, LAURIER (No. 137, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 46.5' Long. 116° 55.5' (82F/15W)
SLOCAN M.D. On the south side of Lendrum Creek at an elevation of approximately 3,200 feet.

CLAIMS: ATTENDED (Lot 978), LAURIER (Lot 3346), RFG Fraction (Lot 12719), TAM RAK (Lot 3341) Crown-granted claims and 20 recorded claims.

ACCESS: By mining road from the Ainsworth-Kaslo highway.

OWNER: HI-LODE MINING CO. LTD., Box 40, Nakusp.

METALS: Silver, lead, zinc.

WORK DONE: Electromagnetic and magnetic surveys covering 5 line-miles were done on the Attended, Laurier, RFG, and Tam Rak claims. One diamond-drill hole, inclined at minus 50 degrees and 160 feet deep, was drilled to test the Attended vein at depth. According to a company spokesman, a vein was encountered and mineralization was sufficiently strong to justify further exploration.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 459; Assessment Report 3619.

CROWN (No. 136, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 45.4' Long. 116° 57.2' (82F/15W)
SLOCAN M.D. The property straddles a ridge between Cedar and Lendrum Creeks, about 2 miles west of Kootenay Lake.

CLAIM: CROWN (Lot 12847).

ACCESS: Via 4 miles of road which leaves the Ainsworth-Kaslo highway about 1 mile south of Woodbury Creek.

OWNER: D. H. NORCROSS, Granite Road, Nelson.

METALS: Silver, lead, zinc (production shown in Table 1).

WORK DONE: Ore was mined from a vein striking south 15 degrees west and dipping steeply to the east. This ore was sent to the Trail smelter.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 258.

GENERAL, GRANT (No. 144, Fig. G)

By P. E. Olson

LOCATION: Lat. 49° 47.5' Long. 116° 59.2' (82F/15W)
SLOCAN M.D. On the north side of Woodbury Creek at an elevation of 4,600 feet.

CLAIMS: GENERAL (Lot 9266) and GRANT (Lot 9267).
ACCESS: Via the Woodbury Creek mining road.
OWNER: Mrs. M. Willett, of Florida.
OPERATOR: G & S ENTERPRISES, Ainsworth.
METALS: Silver, lead, zinc.
DESCRIPTION: Grey copper, with a high silver content, occurs as small shoots in a quartz vein.
WORK DONE: The property was a producer of modest amounts of high-grade silver ore about 50 years ago but has been idle since that time, so the trail and mine portals had all but disappeared. In 1971 a new bridge was built across Woodbury Creek and a road was constructed to the mine portals. The lower portal was cleared and retimbered and the level cleaned out. The upper portal was partially opened before the onset of winter. Several tons of ore was sorted before the mine was closed for the winter.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1921, pp. 132, 133; *B.C. Dept. of Mines & Pet. Res.*, Bull. 53, 1967, p. 82.

VAL TUNGSTEN (No. 8, Fig. G)

LOCATION: Lat. 49° 57.2′ Long. 116° 15.1′ (82F/16)
FORT STEELE M.D. At approximately 7,500 feet elevation at headwaters of Skookumchuck Creek, 38 miles northwest of Cranbrook.
CLAIMS: VAL 1 to 30 (formerly SKO, CHUCK).
ACCESS: By helicopter from Cranbrook, 38 miles.
OPERATOR: ARROW INTER-AMERICA CORPORATION, 304, 535 Thurlow Street, Vancouver 5.
METAL: Tungsten.
DESCRIPTION: Cassiterite and scheelite occur in narrow quartz veins.
WORK DONE: Geological mapping and soil sampling were done on Val 1 to 6 claims in 1970 and geological mapping on all the claims was done in 1971. Four holes totalling 600 feet were diamond drilled on Val 1 claim.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1966, p. 240; Assessment Report 3109.

HILO (No. 42, Fig. G)

LOCATION: Lat. 49° 48.7′ Long. 116° 19.6′ (82F/16W)
FORT STEELE M.D. At 6,000 to 8,600 feet elevation 2 miles west of White Creek near Mount Patrick, 44 miles northwest of Cranbrook.
CLAIMS: HILO 1 to 12.
ACCESS: By road from Marysville, 30 miles.
OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.
METALS: Lead, zinc.
DESCRIPTION: The claims are underlain by sedimentary rocks of the lower and middle parts of the Aldridge Formation and metadiorites of the Moyie intrusions. Scheelite, pyrrhotite, chalcopyrite, galena, and sphalerite occur in vein and replacement deposits in both the sedimentary and the intrusive rocks.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet.
REFERENCE: Assessment Report 3300.

FERNIE 82G

ABC (No. 83, Fig. G)

LOCATION: Lat. 49° 08′ Long. 114° 22′ (82G/1W)
FORT STEELE M.D. At an elevation of 3,000 feet on Sage Creek, 6 miles east of the Flathead River, 70 miles east-southeast of Cranbrook.
CLAIMS: ABC, DEF, GHI, JKL, totalling 164.
ACCESS: By helicopter from Cranbrook, 70 miles.
OWNERS: MARK V MINES LIMITED and THOR EXPLORATIONS LTD., 301, 540 Burrard Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: The claims are underlain by thinly interbedded red argillite and quartzite with less common interbedded shales and carbonate rocks of the Grinnell Formation. Chalcopyrite and bornite occur as disseminations and fine fracture fillings in quartzitic phases of the sedimentary rocks.
WORK DONE: Surface geological mapping, 1 inch equals 200 feet on ABC 1-4, 16 and DEF 6, 8, 33, 35; geochemical soil survey, 150 samples on ABC 1-4, 16 and 93 samples on DEF 6, 8, 35.
REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 270 (Akamina); Assessment Report 3336.

ROK, CAT (No. 41, Fig. G)

LOCATION: Lat. 49° 13.5′ Long. 114° 41.5′ (82G/2E)
FORT STEELE M.D. Near headwaters of and between Howell and Twentynine Mile Creeks, 30 miles south of Fernie.
CLAIMS: ROK, CAT, totalling 59.
ACCESS: Via British Columbia Forest Service road from the Morrissey Bridge southwest of Fernie.
OWNER: CANARCTIC RESOURCES LTD., 505 Fourth Avenue SW., Calgary 1, Alta.
METALS: Copper, lead, zinc, fluorite.
DESCRIPTION: Extensive pyrite mineralization with associated copper, lead, and zinc geochemical anomalies occurs near syenite and trachyte intrusions in quartzites. Fluorite and minor barite occur across a 10-foot-wide contact zone of brecciated carbonate and syenite. A grab sample assayed 9.2 per cent fluorite.
WORK DONE: Geological and geochemical surveys.
REFERENCE: Assessment Report 3162.

RIO (No. 177, Fig. G)

LOCATION: Lat. 49° 23.6′ Long. 115° 10.5′ (82G/6E)
FORT STEELE M.D. On Sand Creek, north of Galloway.
CLAIMS: RIO 111 to 203, 198A, 199A (Sand Creek Prospect).
ACCESS: By road from Galloway.
OWNER: RIO ALTO EXPLORATION LTD., 920, Three Calgary Place, 355 Fourth Avenue SW., Calgary 1, Alta.
DESCRIPTION: Prospecting was done for copper and other base metals in Precambrian sedimentary rocks adjacent to the major fault along the east side of the Rocky Mountain Trench.
WORK DONE: Geochemical soil survey.
REFERENCES: Assessment Reports 3438, 3439.

RIO (No. 58, Fig. G)

LOCATION: Lat. 49° 26.2′ Long. 115° 17.5′ (82G/6W)
FORT STEELE M.D. Approximately 8 miles northwest of Galloway.
CLAIMS: RIO 43 to 110 (Tie Lake Prospect).
ACCESS: From Galloway by road, 8 miles northwest then east on a dirt road.
OWNER: RIO ALTO EXPLORATION LTD., 920, Three Calgary Place, 355 Fourth Avenue SW., Calgary 1, Alta.
DESCRIPTION: Prospecting was done for copper and other base metals in Precambrian sedimentary rocks adjacent to the major fault along the east side of the Rocky Mountain Trench.
WORK DONE: Geochemical soil survey.
REFERENCE: Assessment Report 3437.

TIE (No. 9, Fig. G)

LOCATION: Lat. 49° 24.9′ Long. 115° 21′ (82G/6W)
FORT STEELE M.D. One mile west of Tie Lake, 2.5 miles east of Wardner.
CLAIMS: TIE 1 to 8.
ACCESS: Via road from Wardner, 2.5 miles.
OWNER: COMINCO LTD., 1199 West Pender Street, Vancouver 1.
WORK DONE: Electromagnetic survey covering 6 miles of traverse in 1970.
REFERENCE: Assessment Report 2851.

RIO (No. 176, Fig. G)

LOCATION: Lat. 49° 29.5′ Long. 115° 25′ (82G/6W)
FORT STEELE M.D. Approximately 7 miles northeast of Wardner.
CLAIMS: RIO 5 to 19, 207 to 224, 230 to 234 (Bull River Prospect).
ACCESS: By road from Wardner, 4 miles north then 3 miles east-northeast along the Placid Oil Company road.
OWNER: RIO ALTO EXPLORATION LTD., 920, Three Calgary Place, 355 Fourth Avenue SW., Calgary 1, Alta.

DESCRIPTION: Prospecting was done for copper and other base metals in Precambrian sedimentary rocks adjacent to the major fault along the east side of the Rocky Mountain Trench.

WORK DONE: Geochemical soil survey.

REFERENCE: Assessment Report 3436.

BULL RIVER MINE (No. 162, Fig. G)

By R. W. Lewis

LOCATION: Lat. 49° 30' Long. 115° 23' (82G/11W)
FORT STEELE M.D. The Bull River mine is at 3,500 feet elevation on Burntbridge Creek north of the Bull River road 5 miles due north of Wardner.

CLAIMS: One hundred and five full and 12 fractional.

ACCESS: Off Highway 3 at Wardner, north 5 miles along the Fort Steele road, then 3 miles east along the Bull River road.

OWNER: PLACID OIL COMPANY, 860, Guiness House, 727 Seventh Avenue SW., Calgary 2, Alta.; mine address, Box 850, Cranbrook.

METALS: Copper, silver, gold.

WORK DONE:

Mine and plantsite construction work, which was commenced in the summer of 1970, continued throughout most of 1971. Numerous delays were encountered in the project, with the majority being caused by labour unrest throughout the summer.

During the year all plantsite buildings were completed and all mechanical and electrical equipment was installed. The mill achieved 24-hour production on October 13th and by year end the milling rate was 600 tons per day.

The tailings dam, partially completed in 1970, was finished in late July. In excess of 400,000 cubic yards of overburden was placed and compacted for the outside face of the dam. In addition, an impervious liner was installed prior to the introduction of tailings.

Mining began in Pit 2 on August 5th with the commencement of overburden removal. Initial production started on the 3320 bench and by year end excavation had reached down to the 3200 bench elevation. Materials removed included: overburden, 397,390 cubic yards; waste, 20,980 tons; ore, 57,077 tons. The pit is operated 16 hours a day, 5 days a week.

Milling operations commenced on October 1st and by October 13th the mill was being operated three shifts per day. The first concentrate shipment from Vancouver to Japan was made in March 1972. The designed tonnage of 750 tons per day is expected to be attained early in 1972.

Exploration diamond drilling was done on the property in the vicinity of the tailings pond during the months of March and April. A total of 3,833 feet of diamond drilling was done by a contractor, using one B-18 wireline rig and recovering BQ core. The drilling was to explore the downward mineralization in the vicinity of the tailings ponds.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 476.

RIO (No. 175, Fig. G)

LOCATION: Lat. 49° 31' Long. 115° 27.5' (82G/11W)
FORT STEELE M.D. Approximately 8 miles north of Wardner.

CLAIMS: RIO 20 to 42 (Norbury Prospect).

ACCESS: By road from Wardner, 8 miles.

OWNER: RIO ALTO EXPLORATION LTD., 920, Three Calgary Place, 355 Fourth Avenue SW., Calgary 1, Alta.

DESCRIPTION: Prospecting was done for copper and other base metals in Precambrian sedimentary rocks adjacent to the major fault along the east side of the Rocky Mountain Trench.

WORK DONE: Geochemical soil survey.

REFERENCE: Assessment Report 3435.

VICTOR (No. 59, Fig. G)

LOCATION: Lat. 49° 36.7' Long. 115° 28.5' (82G/11W)
FORT STEELE M.D. At approximately 6,000 feet elevation at the head of Maus Creek, approximately 9 miles southeast of Fort Steele.

CLAIMS: VICTOR 1 to 8.

ACCESS: By road from Fort Steele, 10 miles.

OWNER: VICTOR MINING CORPORATION LTD., 818, 510 West Hastings Street, Vancouver 2.

METALS: Gold, silver, lead, zinc.

DESCRIPTION: Quartz veins in argillites of the Creston Formation contain galena, sphalerite, and pyrite.

WORK DONE: Claims and surface and underground workings mapped; surface diamond drilling, two holes totalling 210 feet on Victor 3.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 347; 1970, p. 476.

COR (No. 98, Fig. G)

LOCATION: Lat. 49° 43' Long. 115° 29' (82G/11W)
FORT STEELE M.D. At 6,700 feet elevation, 3 miles east of Wild Horse River and 2 miles southwest of Mount Haley.

CLAIMS: COR 1 and 2, NEW COR 3 and 4, Mineral Lease M-50.

ACCESS: East off Highway 95 at Fort Steele, 12 miles.

OPERATOR: PLACID OIL COMPANY, Box 850, Cranbrook.

METALS: Copper, silver.

DESCRIPTION: Tetrahedrite occurs as blebs and in short discontinuous veinlets in dolomite.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet; induced polarization survey, 3.3 line-miles; geochemical soil survey, 197 samples, covering portions of all the claims; some work on bridge construction in the immediate area; trenching, 40 feet on Mineral Lease M-50.

REFERENCE: Assessment Report 3382.

KOOTENAY KING (No. 71, Fig. G)

LOCATION: Lat. 49° 44' Long. 115° 35' (82G/12E)
FORT STEELE M.D. At approximately 7,200 feet elevation on the north fork of Victoria Creek, 7 miles north of Fort Steele.

CLAIMS: KOOTENAY KING (Lot 7789), WATSON (Lot 7770), KK 1 to 30.

ACCESS: By road from Fort Steele, 7 miles.

OWNER: COMINCO LTD., 800, 1155 West Georgia Street, Vancouver 5.

METALS: Silver, lead, zinc.

DESCRIPTION: Pyrite, galena, and sphalerite occur in folded, Aldridge argillites and impure quartzites.

WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering all claims; geochemical soil survey, 88 samples covering KK claims; electromagnetic survey, 3.5 line-miles covering KK claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 472; Assessment Reports 3324, 3325.

CHER (No. 60, Fig. G)

LOCATION: Lat. 49° 41′-45′ Long. 115° 37.5′-39.5′ (82G/12E)
FORT STEELE M.D. At approximately 3,700 feet elevation west of Lakit Mountain, 9 miles north of Fort Steele.

CLAIMS: CHER 1 to 60, 62 to 90.

ACCESS: By road from Fort Steele, 9 miles.

OWNER: INTERNATIONAL MINERALS & CHEMICAL CORP. (CANADA) LTD., 1003, 409 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: Stratabound chalcopyrite and bornite occur in argillites and quartzites of the Fort Steele Formation.

WORK DONE: Surface geological mapping, 1 inch equals 50,000 feet; geochemical silt and soil survey, 4 line-miles.

KANANASKIS 82J

WESCO (No. 61, Fig. G)

LOCATION: Lat. 50° 30′ Long. 115° 56′ (82J/5W, 12W)
GOLDEN M.D. At approximately 4,150 feet elevation between Windermere and Burnais Creeks, 3.5 miles northeast of Windermere.

CLAIMS: WESCO 1 to 8, 15 to 18, JUNIPER 1 to 4, ROSE 1 and 2, RIO 1 to 4, 225 to 229, SWANSEA (Lot 2576).

ACCESS: By road from Windermere, 3.5 miles.

OWNER: RIO ALTO EXPLORATION LTD., 920, Three Calgary Place, 355 Fourth Avenue SW., Calgary 1, Alta.

METAL: Copper.

DESCRIPTION: Copper-bearing veins occur in brecciated Jubilee Formation dolomite.

WORK DONE: Biogeochemical survey, approximately 30 line-miles.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 469; Assessment Report 3504.

LARDEAU 82K

ACE (No. 37, Fig. G)

LOCATION: Lat. 50° 01.8'-03.8' Long. 116° 11.2'-15.0' (82K/1E)
GOLDEN M.D. Between elevations of 6,000 and 9,000 feet on Doctor Creek, 60 miles north of Cranbrook.

CLAIMS: ACE 1 to 36.

ACCESS: By road from Canal Flats, 25 miles.

OWNER: TEXAS GULF SULPHUR COMPANY, 701, 1281 West Georgia Street, Vancouver 5.

METALS: Copper, lead, zinc.

DESCRIPTION: The claims are underlain by gently dipping Proterozoic sedimentary rocks and generally conformable intrusive bodies. Mineralization, consisting of pyrite, pyrrhotite, chalcopyrite, magnetite, goethite, and sphalerite, occurs as disseminations and in veins in the sedimentary rocks and in metadiorite.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 500 feet covering all claims.

REFERENCE: Assessment Report 3287.

IMP (No. 62, Fig. G)

LOCATION: Lat. 50° 04' Long. 116° 28' (82K/1W)
GOLDEN M.D. Between 6,000 and 8,000 feet elevation on Granite Creek, a tributary of Findlay Creek, 1 mile southeast of Mount Findlay.

CLAIMS: IMP 1 to 36.

ACCESS: By helicopter from Cranbrook, 48 miles.

OWNER: IMPERIAL OIL ENTERPRISES LTD., 500 Sixth Avenue SW., Calgary, Alta.

METAL: Molybdenum.

DESCRIPTION: Molybdenite occurs in veins and fractures along the edge of the Fry Creek batholith which also contains dykes of pegmatite and aplite.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet covering parts of Imp 11-14; geochemical survey, stream sediment sampling covering entire claim group and soil sampling covering Imp 11-14.

FOG (No. 38, Fig. G)

LOCATION: Lat. 50° 14.5' Long. 116° 54.5' (82K/2W)
SLOCAN M.D. Between elevations of 4,000 and 4,500 feet half way between Duncan and Kootenay Lakes, 1.5 miles west of Mount Lavina, 27 miles north of Kaslo.

CLAIMS: FOG 1 to 21.

ACCESS: By road from Kaslo, 27 miles.

OPERATOR: MINERAL RESOURCES INTERNATIONAL LTD., One Calgary Place, 330 Fifth Avenue SW., Calgary, Alta.

METALS: Lead, zinc, silver, copper.

DESCRIPTION: A vein and replacement deposit occurs in limestone and dolomite.

WORK DONE: Geological survey covering Fog 3-6, 8, 14, 19, and 20.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 336; Assessment Reports 1561, 3323.

STAN, LAND (No. 22, Fig. G)

LOCATION: Lat. 50° 06'-08' Long. 116° 58'-60' (82K/2W)
SLOCAN M.D. On Kootenay Lake, approximately one-half mile south of Lardeau.
CLAIMS: STAN 1 to 10, LAND 1 to 18.
ACCESS: By all-weather road from Lardeau.
OWNER: GREEN LAND MINING LTD., 2050, 777 Hornby Street, Vancouver 1.
WORK DONE: A helicopter-borne magnetometer survey was made covering 7 square miles.
REFERENCE: Assessment Report 3003.

TOM, EK (No. 35, Fig. G)

LOCATION: Lat. 50° 04.8' Long. 117° 08.8' (82K/3E)
SLOCAN M.D. At an elevation of 6,000 feet on Whitewater Creek, 2 miles north of Retallack.
CLAIMS: TOM, EK, CHRIS, TAM, TIM, TIP, totalling 75.
ACCESS: By truck road and foot trail from Retallack.
OPERATOR: HI-RIDGE RESOURCES LTD. (formerly Dry Ridge Silver Mines Ltd.), 8, 1583 Pemberton Avenue, North Vancouver.
METALS: Silver, lead, asbestos.
DESCRIPTION: The claims are underlain by sedimentary and volcanic rocks which are intruded by granite. Chrysotile occurs in hairline fractures in serpentine.
WORK DONE: Geological mapping covering Tom 1, 3, 5 and EK 7-10.
REFERENCE: Assessment Report 3227.

DUBLIN QUEEN (No. 138, Fig. G)

By P. E. Olson

LOCATION: Lat. 50° 00.3' Long. 117° 09.7' (82K/3E)
SLOCAN M.D. Near the head of Stenson Creek, a tributary of Kaslo Creek from the south.
CLAIMS: Nine Crown-granted mineral claims, including the DUBLIN QUEEN (Lot 1167).
ACCESS: By 4 miles of fair mining road, which leaves the Kaslo-New Denver highway at Retallack.
OWNER: ISKUT SILVER MINES LTD., 534 Burrard Street, Vancouver 1.
METALS: Silver, lead, zinc (production shown in Table 1).
WORK DONE: Some drifting and stoping were done as a continuation of work done during the last three years. Several truck-loads of selected ore were shipped to the Trail smelter.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 456.

SB (No. 33, Fig. G)

LOCATION: Lat. 50° 05′ Long. 117° 10.1′ (82K/3E)
SLOCAN M.D. At an elevation of 6,500 feet near Whitewater Mountain, approximately 12 miles northeast of New Denver.
CLAIMS: SB, BJ, BETTY JO, ELAINE, LOIS, PAM, totalling approximately 130.
ACCESS: By helicopter from Nelson, 65 miles.
OPERATOR: PAN OCEAN OIL LTD. [formerly United Bata Resources (Canada) Ltd.], 1050, Three Calgary Place, 355 Fourth Avenue SW., Calgary, Alta.
METALS: Nickel, copper.
DESCRIPTION: The claims are underlain by a sheared and highly serpentinized peridotite sill intruding andesite of the Kaslo Group. Massive pods of pyrrhotite and pentlandite, with secondary nickel silicates occur in the serpentine in a zone 250 feet long. Two channel samples contained 5 to 6 per cent nickel over 8 to 12 feet widths.
WORK DONE: Topography mapped; geological mapping; magnetometer survey, 25 line-miles; trenching, 650 feet.
REFERENCE: Assessment Report 3225.

BEST (No. 141, Fig. G)

By P. E. Olson

LOCATION: Lat. 50° 00.9′ Long. 117° 11.6′ (82K/3E)
SLOCAN M.D. Between Dardanelles and Rambler Creeks, approximately 10 miles east of New Denver.
CLAIM: BEST (Lot 451) Crown grant.
ACCESS: By the Antoine mine road along the north side of McGuigan Creek.
OWNER: THOMAS ECCLES, Box 638, Trail.
METALS: Silver, lead, zinc (production shown in Table 1).
WORK DONE: The Best mine was worked between 1892 and 1900 and was later operated under lease in 1933 and 1934. The mine was worked very briefly during the summer, and a small shipment of hand-sorted ore was sent to the Trail smelter.
REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1934, p. E34.

LUCKY JIM (No. 140, Fig. G)

By P. E. Olson

LOCATION: Lat. 50° 02.0′ Long. 117° 11.8′ (82K/3E)
SLOCAN M.D. Immediately south of the deserted town of Zincton.
CLAIMS: LUCKY JIM (Lot 844), SNAP (Lot 911), and adjoining Crown-granted claims.
ACCESS: By jeep roads from the New Denver-Kaslo highway at Bear Lake.
OWNER: J.A.C. Ross.
OPERATOR: SWIM LAKE MINES LTD., R.R. 2, Kamloops.
METALS: Silver, lead, zinc.
WORK DONE:

Sheep Creek Gold Mines Ltd. operated the Lucky Jim mine until July, 1953. Later it was occasionally leased. The mine was a successful producer but exploration was limited because adjoining claims were not held by the company.

In 1971 considerable road building was done to provide jeep access to the Snap and other claims above the old Lucky Jim mine. Soil sampling and geophysical studies were done on the Snap, as well as some stripping and geological mapping.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1958, p. 45; Assessment Report 3650.

WASHINGTON (No. 139, Fig. G)

By P. E. Olson

LOCATION: Lat. 50° 00.1′ Long. 117° 13.1′ (82K/3E)
SLOCAN M.D. Between elevations of 5,800 and 6,400 feet on the south side of McGuigan Creek.

CLAIMS: Fourteen claims, including the WASHINGTON (Lot 541) and SLOCAN BOY (Lot 626) Crown grants.

ACCESS: By the Antoine mine road, which follows the north side of McGuigan Creek.

OWNER: Larch Mining Ltd.

OPERATOR: W. H. McLEOD, Silverton.

METALS: Silver, lead, zinc (production shown in Table 1).

WORK DONE: A small shipment of selected lead ore, sorted from old dumps, was sent to the Trail smelter. Some surface exposures were stripped and a small amount of underground exploration was done on all levels.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 455.

FERRY, CU (No. 11, Fig. G)

LOCATION: Lat. 50° 03.2′ Long. 117° 23.4′ (82K/3W)
SLOCAN M.D. At 5,500 feet elevation on Wilson Creek, 1 mile north of Rosebery at the north end of the Slocan Valley.

CLAIMS: FERRY No. 2 (Lot 3668), CU, LEO, MO, JOE, CUMO, ANGIE, IDA, MOLLY, LEN, totalling 72 claims and one mineral lease.

ACCESS: By gravel roads up Wilson Creek, from Highway 6 at Rosebery.

OPERATOR: PAN OCEAN OIL LTD. [formerly United Bata Resources (Canada) Ltd.], 1050, Three Calgary Place, 355 Fourth Avenue SW., Calgary 1, Alta.

METAL: Molybdenum.

DESCRIPTION: Molybdenite occurs as fracture coatings and in quartz veins in a granodiorite stock.

WORK DONE: Reconnaissance geochemical soil survey, 875 samples in 1970. In 1971: surface geological mapping, 1 inch equals 200 feet; geochemical soil survey, 1,290 samples; induced polarization survey, 15.5 line-miles; magnetometer survey, 20 line-miles; road construction, one-half mile (east side of Wilson Creek).

REFERENCES: Assessment Reports 2944, 3113, 3565.

MILLIE MACK (No. 34, Fig. G)

LOCATION: Lat. 50° 02.9′ Long. 117° 43.2′ (82K/4)
SLOCAN M.D. On the southwest slope of Silver Mountain north of Caribou Creek, 7 miles northeast of Burton.

CLAIMS: MILLIE MACK (Lot 1831), BLACK BEAR (Lot 4194), RMW 35 to 48.

ACCESS: By helicopter from Nelson, approximately 45 miles.

OPERATOR: RICHWOOD SILVER MINES LTD., 1220, One Bentall Centre, Vancouver 1.

METALS: Silver, lead, zinc, gold.

DESCRIPTION: Galena, tetrahedrite, sphalerite, and arsenopyrite occur in a broken quartz vein in graphitic slate.

WORK DONE: Electromagnetic and magnetometer surveys.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1923, p. 234; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 323; Assessment Report 3226.

SHAKESPEARE (No. 36, Fig. G)

LOCATION: Lat. 50° 05.4′ Long. 117° 48′ (82K/4W)
SLOCAN M.D. At an elevation of 6,000 feet southeast of Upper Arrow Lake on the headwaters of Mineral Creek, 13 miles northeast of Burton.

CLAIMS: SHAKESPEARE (Lot 5720), MOUNTAIN MEADOW (Lot 3604), MEADOW QUEEN (Lot 3605), MEADOW (Lot 5862), SKYLARK (Lot 5719), STAR 1 to 5.

ACCESS: By Caribou Creek and Rodd Creek roads from Burton.

OPERATOR: C. A. Marshall, 2102 – 23rd Avenue, Vernon.

METALS: Silver, lead, zinc.

DESCRIPTION: Galena, sphalerite, argentite, chalcopyrite, pyrite, and pyrrhotite mineralization occurs in a fractured quartz vein in biotite granite.

WORK DONE: Geological, magnetometer, and electromagnetic surveys.

REFERENCES: Assessment Reports 3301, 3302.

PRESIDENT, HAUSER (No. 149, Fig. G)

By P. E. Olson

LOCATION: Lat. 50° 24.9′ Long. 116° 59.6′ (82K/7W)
SLOCAN M.D. On the west side of Duncan Lake, near the head of Gallop Creek.

CLAIMS: PRESIDENT (Lot 2066), HAUSER (Lot 2008), and other adjoining Crown-granted and recorded claims.

ACCESS: By a jeep road along Howser Ridge from the Duncan Dam area.

OWNER: BOUNDARY EXPLORATION LIMITED, Grand Forks.

METALS: Silver, lead, zinc.

WORK DONE: Several diamond-drill holes were drilled to search at depth for the vein found in 1970. Drilling conditions and core recovery were poor making results inconclusive.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.* G.E.M., 1970, p. 462.

YORNOC (No. 89, Fig. G)

LOCATION: Lat. 50° 19′ Long. 116° 14′ (82K/8E)
GOLDEN M.D. Between 6,800 and 7,800 feet elevation at the head of Ben Abel Creek, tributary of Dutch Creek.

CLAIMS: YORNOC, DAVE, totalling 40.

ACCESS: By helicopter from Invermere, 20 miles.

OPERATOR: DRESSER INDUSTRIES, INC., 301, 415 Third Street SW., Calgary, Alta.

METALS: Lead, silver, barite.

WORK DONE: Trenching, 50 feet on Yornoc 24; surface diamond drilling, 12 holes totalling 4,400 feet on Yornoc 22-24.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 471.

SHELLY, CAROLE (No. 88, Fig. G)

LOCATION: Lat. 50° 19′ Long. 116° 15′ (82K/8W)
GOLDEN M.D. At approximately 7,600 feet elevation at the headwaters of Mineral Creek, 16 miles southwest of Invermere.

CLAIMS: SHELLY, CAROLE, totalling 22.

ACCESS: By helicopter from Invermere, 16 miles.

OWNER: J. H. CONROY, Box 325, Invermere.

METALS: Barite, lead, silver, copper.

WORK DONE: Surface diamond drilling, two holes totalling 400 feet on Carole 2 and 6.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 471.

RAD (No. 101, Fig. G)

LOCATION: Lat. 50° 25′ Long. 116° 24′ (82K/8W)
GOLDEN M.D. At 7,000 feet elevation along the south side of Delphine Creek valley, 23 miles southwest of Invermere.

CLAIMS: Nine RAD.

ACCESS: By road from Invermere, 23 miles west.

OPERATOR: MEDESTO EXPLORATION LTD., 215A Tenth Street NW., Calgary, Alta.

METALS: Silver, lead.

DESCRIPTION: The property is underlain by rocks of the Dutch Creek and Mount Nelson Formations, consisting of grey, green, and black argillite and slate, dolomite, and argillaceous quartzite.

WORK DONE: Trenching, 1,100 feet on Rad 1.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 343.

PTARMIGAN (No. 92, Fig. G)

LOCATION: Lat. 50° 29′ Long. 116° 24′ (82K/8W)
GOLDEN M.D. Between 8,100 and 9,600 feet elevation at the headwaters of Red Line Creek, 17 miles west of Invermere.

CLAIMS: RED LINE No. 1 (Lot 5345), RED LINE No. 2 (Lot 5346), CONTENTION Fraction (Lot 5348), IRON CAP (Lot 5437), IRON CROWN (Lot 5349).

ACCESS: By road from Invermere, 35 miles.

OPERATOR: VOYAGER PETROLEUMS LTD., 510, 540 Fifth Avenue SW., Calgary, Alta.

METALS: Copper, lead, silver.

DESCRIPTION: Tetrahedrite, pyrargerite, and pyrite occur in silicified dolomite associated with limestone, argillite, and quartzite.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet; underground geological mapping, 1 inch equals 20 feet on Red Line No. 1.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1955, p. 71; 1964, p. 135.

BALDY (No. 64, Fig. G)

LOCATION: Lat. 50° 41.7′ Long. 116° 26.3′ (82K/9W)
GOLDEN M.D. At approximately 7,400 feet elevation south of Frances Creek between Isaac Creek on the west and Napoleon Creek on the east, 21 miles northwest of Invermere.

CLAIMS: BALDY 1 to 53, 55 to 60, B 1 to 3 Fractions.

OPERATOR: PENARROYA CANADA LIMITEE, 1960, 1055 West Hastings Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Malachite, azurite, and chalcopyrite occur presumably in Mount Nelson Formation but at least below the Toby conglomerate along a small fold axis, probably related to north trending faults.

WORK DONE: Surface workings mapped; surface geological mapping, 1:25,000 covering all claims and 1 inch equals 500 feet covering eight claims; geochemical soil survey covering three claims and silt survey covering 14 claims; trenching, 400 feet on Baldy 3 and 4.

REFERENCE: Assessment Report 3351.

ANNETTE, SLIDE (No. 10, Fig. G)

LOCATION: Lat. 50° 38.5′ Long. 116° 30.0′ (82K/9W, 10E)
GOLDEN M.D. At elevations of 4,800 and 9,000 feet on Forster Creek, 23 miles west of Radium Hot Springs.

CLAIMS: ANNETTE 1 to 60, SLIDE 1 to 54, 1 and 2 Fractions, BLUE 1 to 37, ICE 1 to 22, DOT 1 to 11.

ACCESS: By logging road from Radium Hot Springs, 23 miles.

OWNER: CANADIAN JOHNS-MANVILLE COMPANY LIMITED, Box 1500, Asbestos, P.Q.

METALS: Molybdenum, uranium, tungsten.

DESCRIPTION: The claims are underlain by the Horsethief stock and by metasedimentary rocks of the Purcell Formation. Molybdenite occurs in quartz veins and fracture faces and disseminated in the metasedimentary rocks.

WORK DONE: Geological mapping and geochemical sampling, 739 samples were collected in 1970. In 1971: geological and geochemical surveys covering Ice 1-22; induced polarization survey, 5.7 line-miles along Forster Creek road and 1.3 line-miles in the vicinity of Discovery and Lin Lakes.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 469; Assessment Reports 3222, 3223, 3305, 3390, 3391.

TAMARAK (No. 94, Fig. G)

LOCATION: Lat. 50° 32′ Long. 116° 31′ (82K/10E)
GOLDEN M.D. At approximately 4,500 feet elevation on Horsethief Creek, 27 miles west of Invermere.

CLAIMS: TAMARAK 1 to 23, J RANK 1 and 2.

ACCESS: By road from Invermere, 27 miles.

OPERATOR: J. H. CONROY, Box 325, Invermere.

METALS: Lead, zinc.

DESCRIPTION: Sulphides occur as replacements of limy schist, argillite, and dolomite of the Mount Nelson Formation.

WORK DONE: Geochemical soil sampling, 4 line-miles covering portions of Tamarak 1-8; road construction, one-quarter mile; trenching, 50 feet on Tamarak 7 and 8; stripping, 2,500 square feet on Tamarak 7 and 8.

McLEAN (No. 63, Fig. G)

LOCATION: Lat. 50° 41.7′ Long. 116° 33.5′ (82K/10E)
GOLDEN M.D. At approximately 6,500 feet elevation on McLean Creek, at the headwaters of Frances Creek, 16 miles southwest of Brisco.

CLAIMS: EVELYN 1 to 13.

ACCESS: By road from Brisco or Invermere.

OPERATOR: PURCELL DEVELOPMENT CO. LTD., Brisco.

METALS: Lead, silver.

DESCRIPTION: Veins containing galena occur in limestone.

WORK DONE: Surface geological mapping; geochemical soil sampling; road construction, 1 mile (from Frances Creek south on McLean Creek).

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1915, p. 99.

LEAD QUEEN (No. 86, Fig. G)

LOCATION: Lat. 50° 43′ Long. 116° 34.4′ (82K/10E)
GOLDEN M.D. Approximately 1.5 miles north of the junction of McLean Creek and Frances Creek, 22 miles northwest of Radium.

CLAIMS: LEAD QUEEN (Lot 12763), STEELE (Lot 12499), STEELE No. 2 (Lot 12500), LUCKY STRIKE (Lot 11425), FIRST EFFORT (Lot 11426), BIG CHIEF (Lot 12766), WS 1 to 16, FM 1 to 14, KLICK 1 and 2, FUN 1 to 8, CHAN 1 to 16, CREEK 1 and 2, SB 1 to 3 Fractions.

ACCESS: By road from Radium, approximately 34 miles.

OWNER: FRANCES CREEK MINES LTD., Box 146, Radium.

METALS: Silver, lead, zinc.

DESCRIPTION: A faulted fissure vein system occurs in metamorphosed carbonates of the Mount Nelson Formation.

WORK DONE: Topography and surface and underground workings mapped; surface geological mapping, 1 inch equals 600 feet covering all Crown grants; underground geological mapping, 1 inch equals 10 feet covering No. 4 portal; road construction, approximately 6 miles (from main road to showings); trenching, 500 feet on First Effort, Lucky Strike, and Big Chief Crown grants; stripping, 1,400 square feet on Steele No. 2 Crown grant.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1926, p. 240; 1929, p. 292.

ED (No. 21, Fig. G)

LOCATION: Lat. 50° 36.5′ Long. 116° 36′ (82K/10E)
GOLDEN M.D. Between elevations of 6,400 and 7,500 feet on Edouard Creek, 28 miles west-northwest of Wilmer.
CLAIMS: ED 1 to 10.
ACCESS: By logging road from Wilmer, 28 miles.
OWNER: CANADIAN JOHNS-MANVILLE COMPANY LIMITED, Box 1500, Asbestos, P.Q.
DESCRIPTION: The claims are underlain by the western margin of the Horsethief stock, which consists of quartz monzonite, granodiorite, and granite.
WORK DONE: A geochemical survey was done on Ed 1-10 during 1970; 90 talus fines, soil, and stream sediment samples were collected.
REFERENCE: Assessment Report 3221.

SILVER BASIN (No. 65, Fig. G)

LOCATION: Lat. 50° 41.2′ Long. 116° 44.7′ (82K/10E)
GOLDEN M.D. Between elevations of 7,000 and 7,300 feet in Bugaboo Pass.
CLAIMS: WESTERN CROSS (Lot 1978), NO. 21 (Lot 1977), SILVER 1 to 22.
ACCESS: By road from Brisco, approximately 30 miles.
OWNER: PURCELL DEVELOPMENT CO. LTD., Brisco.
METALS: Silver, lead.
WORK DONE: Three miles of road was repaired. Stripping was done near the old showings and sites were prepared for drilling.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 468.

IRENE (No. 87, Fig. G)

LOCATION: Lat. 50° 41′ Long. 117° 04′ (82K/11E)
SLOCAN M.D. At approximately 2,600 feet elevation at the junction of Irene Creek and Duncan River.
CLAIMS: IRENE 16 to 24.
ACCESS: By helicopter from Healy Landing, 12 miles.
OWNER: BRYANT MINES LIMITED, 4363 Eleventh Avenue West, Vancouver 8.
METAL: Silver.
WORK DONE: Stripping, 25 feet on Irene 20 and 21.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 462.

SILVER CUP (No. 147, Fig. G)

By P. E. Olson

LOCATION: Lat. 50° 38' Long. 117° 22' (82K/11W)
REVELSTOKE M.D. Near the head of Cup Creek, a tributary of Lardeau Creek, about 5 miles southeast of Ferguson.

CLAIMS: SILVER CUP (Lot 768), TOWSER (Lot 1565), and other adjoining claims.

ACCESS: By mining roads from Ferguson.

OWNER: SILVER DAWN MINES LTD., 203, 1033 West Pender Street, Vancouver 1.

METALS: Silver, lead, zinc.

WORK DONE:

When the Silver Cup mine was operating, ore was trammed by cable from the mine to the northeast side of Lardeau Creek, beside the old Ferguson-Ten Mile road. It was a gravity tram, and waste or lean ore was used to hoist mining equipment to the upper end of the tramline. This material was dumped beside the lower tram terminus and has recently been the object of some interest.

In 1971 a small, mobile jigging mill was set up beside the tram terminus dump and several tons of this material was treated. It appears to be of very low grade. No shipments were made during the year.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 466.

TRUE FISSURE (No. 148, Fig. G)

By P. E. Olson

LOCATION: Lat. 50° 42.5' Long. 117° 30' (82K/11W)
REVELSTOKE M.D. On Great Northern Mountain, about 2 miles north of Ferguson.

CLAIMS: TRUE FISSURE (Lot 1097), and many more adjoining Crown-granted and recorded claims.

ACCESS: Via 3 miles of good mining road from Ferguson.

OWNER: COLUMBIA METALS CORPORATION, LIMITED, 1002, 80 Richmond Street West, Toronto, Ont.

METALS: Silver, lead, zinc.

WORK DONE:

The company has explored the True Fissure mine by diamond drilling and underground mining for several years, and reports reserves of over 60,000 tons of ore containing approximately 6.0 per cent lead, 6.0 per cent zinc, and 6 ounces of silver per ton. Milling machinery was transported to the mine in 1969.

The mill was erected in the mill building which was put up in 1970. Overburden on the True Fissure ore zone was stripped and mining commenced. The mill operated for several days, after which operations were suspended. On December 1, 1971, the mill building collapsed under the weight of snow.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 465.

ADR (No. 100, Fig. G)

LOCATION: Lat. 50° 55' Long. 116° 58' (82K/15W)
GOLDEN M.D. At approximately 6,500 feet elevation near head of Vowell Creek, south of Golden.

CLAIMS: ADR, totalling 10.
ACCESS: By road from Parson, 35 miles.
OPERATOR: MEDESTO EXPLORATION LTD., 215A Tenth Street NW., Calgary, Alta.
METALS: Silver, lead.
DESCRIPTION: The property is underlain by metamorphosed sedimentary rocks of the Horsethief Creek Group. Two quartz fissure veins contain argentiferous galena, chalcopyrite, and malachite.
WORK DONE: Trenching, 250 feet on ADR 14.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 467.

RUTH VERMONT MINE (No. 165, Fig. G)

By R. W. Lewis

LOCATION: Lat. 50° 56.9′ Long. 116° 58.9′ (82K/15W)
GOLDEN M.D. The Ruth Vermont mine is on the south side of Vermont Creek, 25 miles southwest of Golden.
CLAIMS: The company holdings include 36 mineral claims and 7 mineral leases.
ACCESS: By logging and mining roads approximately 37 miles from Parson.
OWNER: COPPERLINE MINES LTD., 203, 1885 West Broadway, Vancouver 9.
METALS: Silver, lead, zinc (production shown in Table 1).
WORK DONE: The mine and mill operated from the beginning of the year to June 24th when the mine was closed. Extreme winter conditions and the spring run-off adversely affected working performance during the operating period.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1966, pp. 230-235; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 467.

VERNON 82L

FRED (No. 29, Fig. G)

LOCATION: Lat. 50° 03.8′ Long. 118° 14.5′ (82L/1E)
SLOCAN M.D. Between elevations of 4,000 and 4,800 feet on Barnes Creek, 16 miles northwest of Needles.
CLAIMS: FRED 1 to 16.
ACCESS: From Needles by 16 miles of road along Barnes Creek.
OPERATOR: PAN OCEAN OIL LTD. [formerly United Bata Resources (Canada) Ltd.], 1050, Three Calgary Place, 355 Fourth Avenue SW., Calgary, Alta.
METAL: Zinc.
DESCRIPTION: The property is underlain by a sequence of medium to high-grade metamorphic rocks of the Shuswap Complex. Sphalerite occurs as discrete grains and small stringers paralleling the schistosity in the metasedimentary rocks.
WORK DONE: Surface geological mapping, 1 inch equals 200 feet and geochemical soil survey, 388 samples covering all claims.
REFERENCE: Assessment Report 3079.

ST. PAUL (No. 156, Fig. G)

LOCATION: Lat. 50° 08.7′ Long. 118° 27.2′ (82L/1W)
VERNON M.D. At approximately 5,600 feet elevation on a tributary of Yeoward Creek, on the north slope of Monashee Mountain.
CLAIMS: BLACK BESS (Lot 4186), MINERVA (Lot 4187), ZILPAH (Lot 4188), TOUGHNUT (Lot 4189), SKB, SNOWSHOE, SNOW.
ACCESS: By private road from the Monashee Pass road, 7 miles.
OPERATOR: W. MILLER, R.R. 2, Kidston Road, Vernon.
METALS: Silver, gold, antimony, lead (production shown in Table 1).
WORK DONE: Road construction, 4 miles (renovation of old road from claims to Monashee highway); some trenching and stripping on Snow, Toughnut, and Minerva.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1902, p. 189; 1913, p. 179 (Morgan); 1962, p. 66; 1966, p. A52.

BISSON LAKE (No. 14, Fig. G)

LOCATION: Lat. 50° 03.2′ Long. 118° 36.3′ (82L/2E)
VERNON M.D. On Bisson Lake, 25 miles southeast of Vernon.
CLAIMS: XL 1 to 16.
ACCESS: From Vernon via Highway 6 and the Kettle River valley access road.
OWNER: WILLIAM MILLER, R.R. 2, Kidston Road, Vernon.
METALS: Copper, molybdenum.
WORK DONE: Magnetometer survey on XL 7-16.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1967, p. 222; Assessment Reports 1022, 3114.

SPAR (No. 72, Fig. G)

By J. W. McCammon

LOCATION: Lat. 50° 14.8′ Long. 118° 48.5′ (82L/2W)
VERNON M.D. At 2,800 feet elevation on the southwest slope of the hill north and east of Blue Springs Creek, 7 miles due east of Lumby.
CLAIMS: SPAR 1 to 34.
ACCESS: East from Lumby on Highway 6 for 7.2 miles, then south on Blue Springs Creek (Bear Creek) road for 1.3 miles, and northeast up a tractor road for one-quarter mile to the workings.
OPERATOR: ABLE EXPLORATIONS LTD. (formerly Boraway Mines Ltd.), 549 Howe Street, Vancouver 1.
METALS: Thorium, uranium.
DESCRIPTION:

Radioactive mineralization occurs in a large mass of pegmatite enclosed in rocks mapped as part of the metamorphic Monashee Group of the Shuswap terrane. The pegmatite mass ranges up to half a mile wide and is more than 1.5 miles long.

Five days were spent examining outcrops at the western end of the pegmatite body. No one from Boraway Mines was on the property at the time. A geiger counter and a scintillometer were used to take radiometric readings.

The pegmatite consists chiefly of coarse-grained white to pale bluish white perthitic feldspar with quartz, usually smoky and in scattered rounded grains or graphic intergrowths, occasional books and patches of muscovite and biotite, rare pink to reddish garnets, and rare needles of dark tourmaline.

Fine-grained quartz monzonite and dark gneiss outcrop along the southwest edge of the pegmatite and occur as inclusions near this edge.

High radiation counts and recognizable radioactive mineralization were found only in the bluff above the bottom working and in the northwest corner of the upper working. Elsewhere the radiation measured on the pegmatite averaged about 1.5 times background, rarely reaching 2 times background.

Two main workings were found. The bottom one consists of a face 12 to 15 feet high and 35 feet long, blasted along the base of a northwest trending rounded bluff. The rock exposed is typical pegmatite, composed chiefly of feldspar with quartz, mica, and garnets, with irregular lenses and streaks of fine-grained quartz monzonite and gneiss. Numerous minor joints and kaolin-coated fault fractures are visible in the face. No radiation measurements greater than twice background were found in the excavation. About 5 to 10 feet above the top of the blasted face an irregular shallow trench extends for 18 feet across the bluff. In this trench a bright yellowish brown glassy mineral, identified as monazite, is erratically dispersed through an irregular lensy mass of fine-grained, granular, dark, glassy smoky quartz that averages 2 feet wide. This material gave high radiation readings. A sample of chips gathered along the length of the trench had the following chemical composition: ThO_2 = 0.069, U_3O_8 =0.044, Y = 0.25, Yb = 0.03, La = 0.044, Ce = 0.07, Nd = 0.046, Er = 0.027, Gd = 0.021, Tm = 0.003.

Small patches of similar quartz with monazite occur in the pegmatite for 30 feet west of the trench. An ultraviolet lamp revealed only small scattered areas of pale yellowish fluorescence in the working at night.

The upper working consists of an irregular area 80 feet long and 30 feet wide blasted across the top of the bluff about 200 feet northeast of and 100 feet higher than the lower working. The rock exposed in both workings is similar. The only radioactive material found in the upper working was in the northwest corner in two large blocks of pegmatite. These contained irregular patches, about 2 feet by 4 feet, of granular smoky quartz with scattered monazite. At night the ultraviolet lamp revealed a spectacular display of bright to pale yellow fluorescence. This was particularly strong on the boulders near the quartz-monazite patches.

About 2,000 feet northeast of the two main workings, at 3,150 feet elevation on the north slope of the ridge, two more small blasted holes were found. Nothing of interest was noted in them. The radiation count was about twice background.

WORK DONE: Two trenches and two small pits were blasted, one-quarter mile of tractor road was built, grid lines were laid out over a large area, and radiometric and ultraviolet lamp surveys were made.

DCK (No. 110, Fig. G)

LOCATION: Lat. 50° 17′ Long. 119° 08′ (82L/6E)
VERNON M.D. At approximately 4,000 feet elevation on the north slope of Vernon Hill, 4 miles east of Vernon.

CLAIMS: DCK, X, WCR, ANNE, DENYSE, DAKOTA, SILVER STREAK, GOLD, COPPER, totalling approximately 135.
ACCESS: By road from Vernon, 4 miles.
OPERATOR: KING GRAYBARR MINES LTD., Box 904, Vernon.
METALS: Lead, zinc, silver, gold, copper, molybdenum, nickel, cobalt, cadmium.
DESCRIPTION: Copper and molybdenum occur in highly fractured diorite. Quartz veins 6 to 8 feet wide carry silver-bearing galena and sphalerite.
WORK DONE: Road construction, one-quarter mile on Anne claims and DCK fractions; trenching, 1,500 feet on Anne 1-4; stripping, 300 square feet on Anne 1 and 3.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 298.

REX (No. 96, Fig. G)

LOCATION: Lat. 50° 37.8′-39.8′ Long. 119° 03′-04.7′ (82L/11E)
VERNON and KAMLOOPS M.D. Two and one-half miles south of Mara Lake, 6 miles north of Enderby.
CLAIMS: REX 1 to 20, H 1 to 8.
ACCESS: By Highway 97 from Enderby, 6 miles.
OWNER: MARA LAKE MINES LTD., 210, 535 Howe Street, Vancouver 1.
WORK DONE: Airborne magnetometer, electromagnetic, and radioactivity surveys were done.
REFERENCE: Assessment Report 3394.

BURN (No. 30, Fig. G)

LOCATION: Lat. 50° 44.5′ Long. 119° 08′ (82L/11E, 14E)
KAMLOOPS M.D. Between elevations of 3,700 and 4,200 feet 3 miles west of Mara Lake, 7 miles northeast of Salmon Arm and 9 miles southwest of Sicamous.
CLAIMS: BURN 1 to 10.
ACCESS: By dirt road from Canoe, 8 miles or from Grinrod on Highway 97, 9 miles.
OWNER: J.K.B. BOOTH, 2302, 401 Bay Street, Toronto, Ont.
METAL: Molybdenum.
DESCRIPTION: The claims are underlain by fine-grained limestones of the Sicamous Formation which are intruded by numerous sills and dykes of fine-grained granite. Molybdenite occurs as fine to medium-grained flakes along the margins of quartz veins.
WORK DONE: Geological mapping and line-cutting.
REFERENCE: Assessment Report 3111.

SWAN (No. 66, Fig. G)

LOCATION: Lat. 50° 33.5′ Long. 119° 33.5′ (82L/12E)
KAMLOOPS M.D. At approximately 5,200 feet elevation 3.5 miles north of Falkland.
CLAIMS: SWAN 1, 9 to 11, 20 to 35.

ACCESS: By 4 miles of logging road and 1 to 2 miles of trail from Falkland.

OWNER: GUNNEX LIMITED, 1019, 409 Granville Street, Vancouver 2.

METAL: Copper.

DESCRIPTION: Porphyry-type mineralization occurs in and around a small granitic pluton that intrudes Cache Creek sedimentary rocks adjacent to a major crustal rupture.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 200 feet covering Swan 1, 10, 26-29, 34, 35; geochemical soil survey, 488 samples covering Swan 20-35; magnetometer survey, 18 line-miles covering Swan 20-35.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 319; Assessment Report 3500.

CB (No. 23, Fig. G)

LOCATION: Lat. 50° 43' Long. 119° 48.5' (82L/12W)
KAMLOOPS M.D. Between elevations of 1,300 and 3,500 feet on the north side of the South Thompson River, 3 miles from Pritchard.

CLAIMS: CB 1 and 2, K 1 to 4, AL 5, 6, 13 to 18, 21 to 30, 33, and 34.

ACCESS: By gravel road from Pritchard, 3 miles.

OWNER: KAMAD SILVER CO. LTD., 201, 141 Victoria Street, Kamloops.

METAL: Copper.

DESCRIPTION: Pyrite, chalcopyrite, and malachite occur in andesite lava interbedded with tuff.

WORK DONE: Airborne electromagnetic and magnetometer surveys and a ground magnetometer survey were made in 1969. In 1970 a geochemical survey was made on K 1-4 and AL 5 and 6 claims.

REFERENCES: Assessment Reports 1008, 2403, 2990.

TODD (No. 91, Fig. G)

LOCATION: Lat. 50° 51.7'-54.4' Long. 119° 57.3'-58.3' (82L/13W)
KAMLOOPS M.D. At approximately 3,500 feet elevation between McGillivray and McAuliffe Creeks, east of Louis Creek.

CLAIMS: TODD 1 to 52.

ACCESS: By road from Kamloops, 35 miles.

OWNER: GUNNEX LIMITED, 1019, 409 Granville Street, Vancouver 2.

METALS: Copper, molybdenum.

DESCRIPTION: Geochemical anomalies occur in Cache Creek Group sedimentary and volcanic rocks adjacent to a major fault. Anomalies were found in 1970 by reconnaissance stream silt sampling and were investigated in 1971 by detailed soil sampling.

WORK DONE: Topography mapped; surface geological mapping, 1 inch equals 400 feet and geochemical soil survey, 1,604 samples covering all claims.

JEN, COPPER NUGGET (No. 31, Fig. G)

LOCATION: Lat. 50° 53.0' Long. 119° 20.0' (82L/14W)
KAMLOOPS M.D. At elevations of 1,560 to 2,670 feet between Blind Bay and White Lake, 15 miles north of Salmon Arm.

CLAIMS: JEN 1 and 2, COPPER NUGGET 1 to 4 (formerly COPPER CUP, COPPER CHIEF, VIMY).

ACCESS: By Highway 1 and secondary road.

OWNER: RIO ALTO EXPLORATION LTD., 920, Three Calgary Place, 355 Fourth Avenue SW., Calgary, Alta.

METALS: Copper, gold.

DESCRIPTION: The area is underlain by chlorite schists belonging to the Sicamous Formation of the Mount Ida Group. Mineralization consists of chalcopyrite and gold associated with the more siliceous strata and in quartz veins cutting them.

WORK DONE: Geochemical soil survey, 63 samples.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1930, p. 183; *Geol. Surv., Canada,* Mem. 296, pp. 143, 150; Assessment Reports 3036, 3429.

MOLY (No. 13, Fig. G)

LOCATION: Lat. 50° 58' Long. 118° 48.5' (82L/15W)
REVELSTOKE M.D. Between elevations of 2,000 and 4,000 feet 1 mile northwest of Malakwa.

CLAIMS: MOLY 1 to 18 (formerly LH).

ACCESS: By four-wheel-drive vehicle road from Malakwa.

OPERATOR: DARVA RESOURCES AND DEVELOPMENT LTD., 675, 555 Burrard Street, Vancouver 1.

METAL: Molybdenum.

DESCRIPTION: The claims are underlain by gneissic quartz diorite, quartz-mica schist, and granodiorite. Molybdenum mineralization occurs scattered throughout the granodiorite and as a few specks in the quartz diorite.

WORK DONE: Seven and one-half line-miles of line-cutting and geochemical soil sampling covering Moly 1-5, 9-12, and 14.

REFERENCES: *B.C. Dept. of Mines,* Bulletin 9, p. 67; Assessment Report 3163.

SEYMOUR ARM 82M

MOUNT COPELAND MINE (No. 173, Fig. G)

By E. Sadar

LOCATION: Lat. 51° 08' Long. 118° 29' (82M/1W)
REVELSTOKE M.D. On the south slope of Mount Copeland, 15 miles northwest of Revelstoke.

CLAIMS: Three hundred and eighty-two claims comprising the AA, ARM, AVA, DON, H, HAP, JACK, KEN, KNOX, WALT, XX, YY, GRIZ, JRE, and LORRIE.

ACCESS: Via 20 miles of gravel road north from Highway 1, approximately 2 miles west of Revelstoke.

OWNER: King Resources Company.

OPERATOR: KRC OPERATORS LTD., Box 1700, Revelstoke.

METAL: Molybdenum (production shown in Table 1).

DESCRIPTION: Molybdenite occurs in a vein-like zone of aplites and pegmatites contained in syenite country rock. The zone has been highly folded and dips south with a southeasterly rake.

WORK DONE: Drifting and crosscutting, 895 feet; sub-drifting, 1,108 feet; raising, 716 feet; diamond drilling, underground, 2,117 feet.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 464; *B.C. Dept. of Mines & Pet. Res.*, Bulletin 57.

A (No. 79, Fig. G)

LOCATION: Lat. 51° 05′-06′ Long. 119° 30′-33′ (82M/4E)
KAMLOOPS M.D. At approximately 5,500 feet elevation at Gilfrid Lake south of Pisima Mountain, on Adams Plateau.

CLAIMS: A 1 to 22, SILVER KING 1, 3 and 4.

ACCESS: By road from Squilax, approximately 24 miles.

OWNER: ORELL COPPER MINES LTD., Box 886, Salmon Arm.

METALS: Silver, lead, zinc.

DESCRIPTION: This is a replacement deposit in limestone.

WORK DONE: Trenching, approximately 4 acres; stripping, approximately 20 acres.

EX (No. 133, Fig. G)

By E. Sadar

LOCATION: Lat. 51° 03.6′ Long. 119° 32.3′ (82M/4E)
KAMLOOPS M.D. At elevations of 5,000 and 6,000 feet on Adams Plateau, east of Adams Lake and north of Scotch Creek.

CLAIMS: EX, C, PAT, LUCKY, etc., totalling 142.

ACCESS: By 16 miles of logging road north from Highway 1 at Squilax.

OWNER: GIANT METALLICS MINES LIMITED, 301, 845 West Pender Street, Vancouver 1.

METALS: Lead, zinc.

DESCRIPTION: The area is underlain by a thick series of sedimentary and volcanic rocks, limestone, greenstone schist, quartzite, and phyllite. The principal minerals are sphalerite, galena, and pyrrhotite.

WORK DONE: During the 1971 season 10 men were employed clearing the 50-ton -per-day millsite area near Shuswap Lake, and stripping overburden on the Mosquito King area. A 7-mile stretch of road between the main group of claims and the Lucky Coon group to the west was improved.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 317; Assessment Report 3220.

PLUCKY (No. 93, Fig. G)

LOCATION: Lat. 51° 07.9′-10.0′ Long. 119° 39.5′-43.7′ (82M/4E)
KAMLOOPS M.D. At approximately 2,300 feet elevation on the west side of Adams Lake, southeast of Johnson Lake.

CLAIMS: PLUCKY 1 to 100.

ACCESS: By road from Barriere, 15 miles.

OWNER: G. V. Lloyd.

OPERATORS: - YUKON GEOTHERMAL and JAGOR RESOURCES LTD., 19, 3515–17th Avenue SW., Calgary, Alta.

DESCRIPTION: The area is underlain by slightly metamorphosed limestones and argillites. No significant mineralization has been discovered. Some copper is found in a rusted tension zone in a magnetic low.

WORK DONE: Surface geological mapping, 1 inch equals one-quarter mile; geochemical survey; trenching, 45 square feet on Plucky 31.

VIC (No. 40, Fig. G)

LOCATION: Lat. 51° 01.5′ Long. 119° 42.5′ (82M/4E)
KAMLOOPS M.D. At elevations of 2,350 to 4,500 feet on the east side of Adams Lake opposite Skwaam Bay, 40 miles northeast of Kamloops.

CLAIMS: VIC 1 to 27.

ACCESS: By Highway 5 from Kamloops to Squilax and then north to Adams Lake, approximately 45 miles, then by boat across Adams Lake.

OWNER: D. K. BRAGG, 3567 West 27th Avenue, Vancouver 8.

METALS: Silver, lead, zinc, copper.

WORK DONE: Geological and geochemical surveys on Vic 8 and 19-23 claims.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 317; Assessment Reports 2650, 3321.

HOMESTAKE (No. 172, Fig. G)

By E. Sadar

LOCATION: Lat. 51° 06.7′ Long. 119° 49.5′ (82M/4W)
KAMLOOPS M.D. On Homestake Creek at approximately 3,000 feet elevation, immediately north of the road, 3 miles west of Skwaam Bay.

CLAIMS: HOMESTAKE, ARGENTUM, MAPLELEAF, TROUBLESOME, SILVERSTAR Fraction No. 1 Crown-granted and 106 KAM, JOE, H, FRED, MAX, DEL located claims.

ACCESS: By the Louis Creek-Skwaam Bay road, 3 miles west from Skwaam Bay.

OWNER: KAMAD SILVER CO. LTD., 141 Victoria Street, Kamloops.

METALS: Barite, silver, copper, lead, zinc.

DESCRIPTION: Various veins and stringers host barite, tetrahedrite, galena, sphalerite, pyrite, chalcopyrite, argentite, and a minor amount of native silver.

WORK DONE: The following underground work was carried out to enter the old workings and the ore zone for the purpose of sampling: drifting, 575 feet; sub-drifting, 100 feet; raising, 145 feet. Two diamond-drill holes totalling 495 feet were drilled on the Argentum claim.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1936, pp. D32-D36; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 234; 1970, p. 317.

HILLTOP (No. 74, Fig. G)

LOCATION: Lat. 51° 29′ Long. 119° 38′ (82M/5E)
KAMLOOPS M.D. At approximately 4,000 feet elevation at the headwaters of Fennell and Gollen Creeks, 23 miles northeast of Barriere.

CLAIMS: HILLTOP 1 to 5, 7 to 46.
ACCESS: By road from Barriere, 23 miles.
OPERATOR: DYNASTY EXPLORATIONS LIMITED, 330, 355 Burrard Street, Vancouver 1.
METAL: Copper.
DESCRIPTION: Disseminated chalcopyrite is found in altered greenstone and chloritic schists.
WORK DONE: Claims mapped; surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 800 samples; magnetometer survey, 35 line-miles.

BEX (No. 76, Fig. G)

LOCATION: Lat. 51° 16'-19' Long. 119° 41.5'-45' (82M/5E)
KAMLOOPS M.D. At approximately 3,500 feet elevation on John and Fiscon Creeks, east of the northern end of East Barriere Lake.
CLAIMS: BEX, NL, RON, MF, FRED, BOB, GEN, RAN, FOSS, JIM, DUN, JAF, GUN, totalling approximately 155 and GRIZZLY, CU, KEN, JOKE, SOU, totalling 33 optioned from Souvenir Mines Ltd.
ACCESS: By road from Barriere, 22 miles.
OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, 5, 465 Victoria Street, Kamloops.
METAL: Copper.
DESCRIPTION: Chalcopyrite occurs disseminated in chloritic metavolcanic rocks.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil and silt survey, 1,832 samples covering all claims; induced polarization survey covering central part of claim group; surface diamond drilling, six holes totalling 3,000 feet covering central part of claim group.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 315; Assessment Report 3432.

GRIZZLY, CU, KEN (No. 164, Fig. G)

LOCATION: Lat. 51° 16.5'-18' Long. 119° 44'-47' (82M/5)
KAMLOOPS M.D. At approximately 3,100 feet elevation on the southeast side, near the north end, of East Barriere Lake.
CLAIMS: GRIZZLY 1 to 6, CU 1 to 3, KEN 1 to 12, SOU 1 to 8, JOKE 1 to 4.
ACCESS: By road from Barriere, approximately 22 miles.
OWNER: Souvenir Mines Ltd.
OPERATOR: CANADIAN SUPERIOR EXPLORATION LIMITED, 5, 465 Victoria Street, Kamloops.
WORK DONE: *See* BEX.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 315.

EBL (No. 102, Fig. G)

LOCATION: Lat. 51° 17'-21' Long. 119° 45'-50' (82M/5W)
KAMLOOPS M.D. At approximately 3,500 feet elevation between east ends of North and East Barriere Lakes.

CLAIMS: EBL, REM, NLSS, B&B, BRAD, SNARK, totalling 147.
ACCESS: By road from Barriere, 25 miles.
OWNER: Royal Canadian Ventures Ltd.
OPERATOR: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5.
METAL: Copper.
DESCRIPTION: Pyrrhotite, pyrite, and chalcopyrite occur in chlorite, sericite, and graphite schists.
WORK DONE: Geochemical soil survey, 947 samples; electromagnetic survey, 9.4 line-miles; and magnetometer survey, 17.2 line-miles covering Rem, EBL, and B&B claims; surface diamond drilling, 17 holes totalling 6,475 feet on Rem 15, 18, EBL 29-32, and B&B 7, 12, 14.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 314.

C&G (No. 75, G)

LOCATION: Lat. 51° 17.4′-19.5′ Long. 119° 50′-55′ (82M/5W)
KAMLOOPS M.D. Between 2,500 and 4,000 feet elevation adjacent to the south side of the southwest end of North Barriere Lake, 20 miles east of Barriere.
CLAIMS: C&G 1 to 40, DEN 1 to 49, L 1 to 6.
ACCESS: By road and boat from Barriere, 25 miles.
OPERATOR: DUCANEX RESOURCES LIMITED, 1202, 1177 West Hastings Street, Vancouver 1.
WORK DONE: Reconnaissance surface geological mapping and geochemical soil survey covering C&G claims.
REFERENCE: Assessment Report 3350.

PY (No. 15, Fig. G)

LOCATION: Lat. 51° 28.5′-30.5′ Long. 119° 50.6′-52.4′ (82M/5W, 12W)
KAMLOOPS M.D. At elevations of 3,800 to 4,100 feet near Harper Creek, 8 miles north of North Barriere Lake.
CLAIMS: PY 1 to 30.
ACCESS: By the Harper Creek forest access road from Barriere.
OWNER: SUPERTEST INVESTMENTS AND PETROLEUM LIMITED, c/o B.P. Explorations (Canada) Ltd., 335 Eighth Avenue SW., Calgary, Alta.
METAL: Copper.
WORK DONE: Line-cutting and geochemical soil sampling, 30.9 line-miles covering all claims.
REFERENCES: Assessment Reports 3141, 3151.

H, VAL (No. 39, Fig. G)

LOCATION: Lat. 51° 22.3′ Long. 119° 53.0′ (82M/5W)
KAMLOOPS M.D. On Harper Creek, 1.5 miles north of North Barriere Lake.
CLAIMS: H 1 to 10, VAL 1 to 15, S 1 to 4 Fractions.

ACCESS: By road from Barriere for 18 miles to North Barriere Lake and then by Harper Creek forest access road.

OWNER: SUPERTEST INVESTMENTS AND PETROLEUM LIMITED, c/o B.P. Explorations (Canada) Ltd., 335 Eighth Avenue SW., Calgary, Alta.

METAL: Molybdenum.

DESCRIPTION: Molybdenite occurs disseminated in quartz monzonite.

WORK DONE: Geological mapping, 1 inch equals 400 feet.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1967, p. 134; 1968, p. 169; Assessment Reports 1062, 1669, 2263, 3298.

GIN (No. 17, Fig. G)

LOCATION: Lat. 51° 21.5' Long. 119° 54.5' (82M/5W)
KAMLOOPS M.D. Two and one-half miles north of North Barriere Lake, 19 miles northeast of Barriere.

CLAIMS: GIN 1 to 11.

ACCESS: By secondary road and logging road from Barriere, 19 miles.

OPERATOR: CAMBRIDGE MINES, LIMITED, 420 Howe Street, Vancouver 1.

WORK DONE: Line-cutting, 10.5 miles.

REFERENCE: Assessment Report 3150.

BROKEN RIDGE (No. 68, Fig. G)

LOCATION: Lat. 51° 19' Long. 119° 55' (82M/5W)
KAMLOOPS M.D. Between 2,200 and 4,200 feet elevation near Birk Creek, immediately north of the southwest end of North Barriere Lake.

CLAIMS: BROKEN RIDGE 1 and 2, WEASEL 1 to 4, BEAR 1 to 6, BLUENOSE, BLUENOSE 1 to 6, COUGAR, COUGAR 1 to 7, CUB 1 to 6 Fractions, JACKIE 1 to 4, MIKO 1 to 8, ROSALIE 1 to 6, ROSE 1 and 3.

ACCESS: By four-wheel-drive vehicle from Barriere, 20 miles.

OPERATOR: DUCANEX RESOURCES LIMITED, 1202, 1177 West Hastings Street, Vancouver 1.

METALS: Copper, zinc.

DESCRIPTION: Chalcopyrite and pyrite occur in chlorite schists which underlie quartz-sericite schists containing presumably syngenetic sphalerite.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet; geochemical soil survey, 35 line-miles; and induced polarization survey, 10 line-miles covering all claims; surface diamond drilling, seven holes totalling 2,334 feet on Miko 1, Cougar 4, 6, and Bear 2, 5 claims.

REFERENCE: Assessment Report 3333.

MAY (No. 67, Fig. G)

LOCATION: Lat. 51° 19.5' Long. 119° 55' (82M/5W)
KAMLOOPS M.D. At approximately 2,200 feet elevation on lower Birk Creek and north of Mack Creek, about 50 miles north-northeast of Kamloops.

CLAIMS: May 1 to 6, 9 to 20.

ACCESS: By road from Barriere, 20 miles.

OPERATOR: DUCANEX RESOURCES LIMITED, 1202, 1177 West Hastings Street, Vancouver 1.

METALS: Copper, zinc.

DESCRIPTION: Massive pyrrhotite-pyrite-chalcopyrite-sphalerite lenses and beds outcrop along the creek stratigraphically above quartz-sericite schists.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet and geochemical soil survey, 3 line-miles covering May 1-6.

RIO (No. 77, Fig. G)

LOCATION: Lat. 51° 19' Long. 119° 10' (82M/6E)
KAMLOOPS M.D. At approximately 5,000 feet elevation on Canyon Creek, between Humamilt and Stukemapten Lakes, 16 miles southeast of the head of Adams Lake.

CLAIMS: RIO, totalling 5.

ACCESS: By road from Anglemont, 35 miles.

OWNER: AMAX POTASH LIMITED (formerly Amax Exploration, Inc.), 601, 535 Thurlow Street, Vancouver 5.

METALS: Copper, tungsten.

DESCRIPTION: Scheelite and chalcopyrite occur in a skarn zone along the contact of quartz monzonite with metasedimentary rocks. Chalcopyrite is disseminated in the intrusion also.

WORK DONE: Surface geological mapping, 1 inch equals 500 feet; geochemical silt and soil survey, 25 samples; trenching, 180 feet.

ROBINA (No. 170, Fig. G)

LOCATION: Lat. 51° 23' Long. 118° 25' (82M/8W)
REVELSTOKE M.D. At approximately 2,500 feet elevation immediately east of the Columbia River, 1 mile north of Eighteen Mile Rapids, 34 miles north of Revelstoke.

CLAIMS: ROBINA 1 to 22.

ACCESS: By Highway 23 from Revelstoke, 34 miles.

OWNER: NISSON MINING & DEVELOPMENT LTD., 626 West Pender Street, Vancouver 2.

METAL: Molybdenum.

DESCRIPTION: Molybdenite, pyrrhotite, and pyrite occur in massive siliceous rock in mica schist.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet; geochemical soil survey, 10.1 line-miles; and magnetometer survey covering all claims; surface diamond drilling, 17 holes totalling 3,517 feet on Robina 1, 2, 4, 7, and 8.

REFERENCES: *Geol. Surv., Canada,* Paper 64-32, p. 34 (Sterling and Hard Pan); *B.C. Dept. of Mines,* Bulletin 9, 1940, p. 70 (Sterling); *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 464.

SIN (No. 78, Fig. G)

LOCATION: Lat. 51° 31′ Long. 119° 40′ (82M/12E)
KAMLOOPS M.D. At approximately 6,000 feet elevation at the headwaters of the Barriere River, south of Vavenby Mountain.

CLAIMS: SIN, totalling 40 claims and fractions.

ACCESS: By road from Vavenby, 10 miles.

OWNER: CANADIAN SUPERIOR EXPLORATION LIMITED, 5, 465 Victoria Street, Kamloops.

METAL: Copper.

DESCRIPTION: Chalcopyrite is disseminated in sericite schist.

WORK DONE: Geochemical soil survey, 20 line-miles covering all claims.

VM (No. 16, Fig. G)

LOCATION: Lat. 51° 30.5′ Long. 119° 43′ (82M/12E)
KAMLOOPS M.D. At approximately 4,000 feet elevation at the headwaters of Barriere River, 5 miles south of Vavenby.

CLAIMS: VM, VA, totalling approximately 250.

ACCESS: By road from Vavenby, 6 miles.

OWNER: ROYAL CANADIAN VENTURES LTD., 270, 180 Seymour Street, Kamloops.

METAL: Copper.

DESCRIPTION: Disseminated chalcopyrite occurs in acid volcanic and sedimentary rocks.

WORK DONE: Geochemical, magnetic, electromagnetic, and geological surveys over various claims during 1970 and 1971.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 297; Assessment Reports 2988, 3195, 3525.

SUNRISE, SNOW, REDTOP (No. 155, Fig. G)

LOCATION: Lat. 51° 37.5′-39.5′ Long. 119° 48′-55.5′ (82M/12W)
KAMLOOPS M.D. At approximately 4,500 feet elevation on Mount McClennan, 2 miles northwest of Birch Island.

CLAIMS: CL, ETC, ROB, BS, BOSS, ROBERTA, BON, PAT, RCB, HEY, totalling approximately 179.

ACCESS: By Highway 5 from Kamloops, 90 miles.

OWNER: CALBAY MINING CORPORATION LTD., 1307, 1030 West Georgia Street, Vancouver 5.

METALS: Copper, zinc, lead.

DESCRIPTION: Metasedimentary rocks consisting of schists, quartzites, and limestone are intruded by granite. Mineralization occurs in lenses and fractures.

WORK DONE: Road construction, 2 miles; trenching, 2,784 cubic yards on CL 1, 3, 11 and Hey 13; surface diamond drilling, five holes totalling 1,218 feet on CL 1, 3, 11 and Etc 122.

GOOF, SUE, HAIL (No. 103, Fig. G)

By E. Sadar

LOCATION: Lat. 51° 30.5'-33.5' Long. 119° 45'-53' (82M/12W)
KAMLOOPS M.D. At 5,300 feet elevation at the head of Harper Creek, 5.75 miles southeast of Birch Island.

CLAIMS: GOOF, SUE, HAIL, BETH, HARP, LEO, JUDY, MUF, KARINA, totalling approximately 300.

ACCESS: By 10 miles of logging road from south side of North Thompson River, 1.5 miles west of Vavenby.

OWNERS: NORANDA EXPLORATION COMPANY, LIMITED, 1050 Davie Street, Vancouver 5 and QUEBEC CARTIER MINING COMPANY, 1418, 355 Burrard Street, Vancouver 1.

METAL: Copper.

DESCRIPTION: Chalcopyrite, pyrite, pyrrhotite, sparse sphalerite, and galena occur in quartz lenses in schist, disseminated and in small veins and as replacement in schist and phyllite.

WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering all claims; geochemical soil survey, 629 samples covering Muf, Hail, Judy, and Beth claims; electromagnetic survey, 23.5 line-miles covering same claims as geochemical survey; surface diamond drilling, 28 holes totalling 18,536 feet on Muf, Hail, Judy, and Beth claims.

REFERENCE: *Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 297-301.

GOLDEN 82N

BOW (No. 97, Fig. G)

LOCATION: Lat. 51° 11.4' Long. 116° 20.6' (82N/1W)
GOLDEN M.D. At elevations above 7,000 feet at the headwaters of Moose Creek, between Sharp and Helmet Mountains, 30 miles southeast of Golden.

CLAIMS: BOW 1 to 49 (formerly DEMON).

ACCESS: By helicopter from Golden, 30 miles.

OPERATOR: ALBANY OIL & GAS LIMITED, 660, 330 Fifth Avenue SW., Calgary, Alta.

METALS: Iron, titanium, niobium.

DESCRIPTION: Ilmenite-magnetite mineralization occurs disseminated or as distinct bands in quartzite, pegmatite, and diorite.

WORK DONE: Geological mapping and sampling.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1954, p. 150; Assessment Report 3389.

WATERLOO (No. 70, Fig. G)

LOCATION: Lat. 51° 10' Long. 116° 23' (82N/1W)
GOLDEN M.D. At approximately 7,200 feet elevation on Moose Creek, a tributary of Beaverfoot River, 30 miles southeast of Golden.

CLAIMS: WATERLOO 1 to 6, 9 to 14, RIVER 1 to 4.

ACCESS: By highway, trail, and helicopter from Golden, 30 miles.
OWNER: Purcell Development Co. Ltd.
OPERATOR: COMINCO LTD., 1155 West Georgia Street, Vancouver 5.
METALS: Silver, lead, zinc.
DESCRIPTION: Sulphide occurs as replacement of dark, thin-bedded siliceous limestone.
WORK DONE: Surface geological mapping.
REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 467; Assessment Report 3433.

ICE (No. 69, Fig. G)

LOCATION: Lat. 51° 02′ Long. 117° 43′ (82N/4E)
REVELSTOKE M.D. At approximately 7,000 feet elevation at the headwaters of Albert Creek, 8 miles southeast of Albert Canyon, 21 miles east of Revelstoke.
CLAIMS: ICE 1 to 60.
ACCESS: By helicopter from Revelstoke, 21 miles.
OWNER: UNION CARBIDE CANADA MINING LTD., 602, 1112 West Pender Street, Vancouver 1.
METAL: Tungsten.
DESCRIPTION: Scheelite occurs in quartz veins and fractures in quartzite and skarn.
WORK DONE: Surface geological mapping, 1 inch equals 400 feet covering northern half of claims.
REFERENCE: Assessment Report 3725.

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PLACER

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GENERAL REVIEW OF PLACER MINING

Placer gold production continues to decline. In 1970 sales of placer gold to the Mint totalled $4,647, the lowest amount ever recorded. The almost complete exploitation of all known placer occurrences, the lack of new discoveries, and the constantly increasing costs of operation have resulted in the nearly complete extinction of placer gold production in the Province. Nevertheless, some individuals and companies still persist with exploration programmes and production operations.

REPORTS ON PLACER OPERATIONS

ATLIN MINING DIVISION

Placer-mining activity in the vicinity of Atlin showed a slight upward trend. Work was done by several old-time miners at locations on Pine, Spruce, Birch, Ruby, and McKee Creeks.

PINE CREEK: Karl Sieger and his partner worked for four months on Pine Creek and moved about 5,000 cubic yards of gravel with a D-8 caterpillar bulldozer.

S. R. Craft, W. J. Husselbee, and F. Graham also worked their leases.

SPRUCE CREEK: Tom Osborne and his two partners worked their lower Spruce Creek lease which was bought from F. La Roche.

Six thousand cubic yards of gravel was moved by D-9 caterpillar bulldozer by Backlund, Simpson, and Staghall on their leases on Spruce Creek.

J. D. Mason, A. V. Mattson, and J. E. Tillotson also worked their leases.

BIRCH CREEK: N. Bentley and W.A.R. Fraser worked their leases on Birch Creek.

RUBY CREEK: S. R. Craft worked his lease on Ruby Creek.

McKEE CREEK: Bruce Morton hydraulicked his lease on upper McKee Creek for four months.

On lower McKee Creek, A. Vesnaver and his partner drift mined for three months.

SKEENA MINING DIVISION

SULPHURETS CREEK: C. E. Kilbury of Ketchikan, Alaska, located two leases during 1971 on Sulphurets Creek about 5 miles from the Unuk River for J. T. and E. J. Williams of Enumclaw, Washington. The ground was worked for three months; some clearing was done and several cabins and a 3 by 60-foot sluice flume were built. Approximately 300 yards of gravel was moved, but reportedly only a small amount of gold was recovered.

CARIBOO MINING DIVISION

The Ogden mine on placer-mining leases Nos. 3744, 3745, 5907, and 5908 on the north side of Cedar Creek was not operated during the year.

Antler Creek Placers Ltd. worked on four placer-mining leases (Nos. 6852, 6853, 7052, and 7053) on Nugget Gulch on upper Antler Creek. A hydraulic system was installed and overburden covering a pre-glacial bedrock channel was stripped preparatory to mining in 1972.

NEW WESTMINSTER MINING DIVISION

Zyrox Mining Company Ltd. holds 14 placer leases on the delta of the Lillooet River, 40 miles by boat from Harrison. Bulk samples for testing were taken.

Aurox Mines Ltd. holds 19 placer leases on the lower Lillooet River. Bulk samples for testing were taken.

Platinate Minerals & Industries Ltd. holds 55 placer leases along the Lillooet River. Pits were dug on eight leases and samples from them were panned.

Channel Bar Mining Co. Ltd. holds three placer leases on the Fraser River 8 miles north of Hope. A test run was made and later in the year a change of process was made.

FORT STEELE MINING DIVISION

Maus Minerals Ltd. holds placer-mining leases Nos. 732, 733, and 945 on Maus Creek 5 miles northeast of Fort Steele. The bedrock drift from the foot of the shaft on lease 733 was driven 8 feet in a southerly direction, parallel to the creek.

J. Pratt and associates, who hold placer-mining leases on the Moyie River, drilled a test hole to a depth of 90 feet between the Moyie River and Negro Lake to prospect for a deep channel in the area.

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STRUCTURAL MATERIALS AND INDUSTRIAL MINERALS

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GENERAL REVIEW OF STRUCTURAL MATERIALS AND INDUSTRIAL MINERALS

Various British Columbia industrial mineral deposits received attention in 1971. In the north, asbestos occurrences near Dease Lake were examined, a large extension to the Liard Hot Springs (Gem) fluorite deposit was discovered, and barite-fluorite mineralized rock was found east of Muncho Lake. In the south, exploration work was continued on the Mount Brussilof (ROK) magnesite deposit east of Radium, fluorite was found in the Flathead River area, trenching and drilling were done on phosphate claims southwest of Corbin, a tufa deposit was explored near Hills, a pyrophyllite deposit near Ashcroft received some attention, a silica-feldspar sand deposit near North Bend was mapped, a silica-sericite deposit at Fair Harbour was trenched, and several rock deposits were investigated for suitability as stone-chip sources.

At Cassiar the asbestos mill expansion begun in 1970 was completed and the plant was put into use. Trial runs were continued at the new Crownite diatomite-pozzolan mill in Quesnel. Both barite recovery plants in the Columbia Valley were operated during the summer, but little of the material produced was used due to lack of markets. Rock chips for granules and aggregate were produced in plants at Sirdar, Grand Forks, Rock Creek, Oliver, Armstrong, and on the Sechelt Peninsula. Plans were prepared for limestone production at Spencer Creek, on Alberni Canal.

Established industrial mineral and structural material producers operated at about normal rates.

REPORTS ON COMMODITIES

ASBESTOS

TOM, EK (No. 35, Fig. G)

LOCATION: Lat. 50° 04.8' Long. 117° 08.8' (82K/3E)
Report on this property under metals in section 82K/3E.

J (No. 65, Fig. A)

LOCATION: Lat. 58° 15' Long. 128° 50' (104I/2W, 7W)
LIARD M.D. Between 4,750 and 5,300 feet elevation around and south of a small lake 3.25 miles southwest of Letain Lake.

CLAIMS: J 1 to 8.

ACCESS: By helicopter from Dease Lake, 45 miles.

OWNER: TOURNIGAN MINING EXPLORATIONS LTD., 703, 535 Thurlow Street, Vancouver 5.

DESCRIPTION: Chrysotile asbestos, in fibres 1/32 to 1/2-inch long, is reported in serpentine in an area 2,000 feet long and up to 150 feet wide.

WORK DONE: Surface geological mapping and magnetometer surveys covering all claims.

JAY (No. 13, Fig. A)

LOCATION: Lat. 58° 42′ Long. 129° 53′ (104I/12W)
LIARD M.D. Between 3,800 and 4,400 feet elevation approximately 2 miles east of Halfmoon Lake, 18 miles north-northeast of Dease Lake village.

CLAIMS: JAY 11 to 14, RANDY 1 to 24, 30 to 37.

ACCESS: By helicopter from Dease Lake, 18 miles.

OWNERS: American Smelting and Refining Company and Tournigan Mining Explorations Ltd.

OPERATOR: AMERICAN SMELTING AND REFINING COMPANY, 504, 535 Thurlow Street, Vancouver 5.

DESCRIPTION: Cross-fibre asbestos occurs in serpentinized peridotite.

WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering all claims; magnetometer survey, 9 line-miles covering Jay 11-14 and Randy 1-8, 13, 15, and 16.

REFERENCES: Assessment Reports 315 (Eye), 1649 (Emile), 3082, 3363.

BAK, WP (No. 32, Fig. A)

LOCATION: Lat. 58° 35′ Long. 130° 01′ (104I/12W, 104J/9E)
LIARD M.D. At approximately 3,000 feet elevation on the east side of Dease Lake, 1.5 miles east of Nine Mile Point, 10 miles north of Dease Lake village.

CLAIMS: BAK 1 to 38, WP 1 to 14, HAPPY 1 and 2.

ACCESS: By road from Dease Lake village, 10 miles.

OPERATOR: AMERICAN SMELTING AND REFINING COMPANY, 504, 535 Thurlow Street, Vancouver 5.

DESCRIPTION: Asbestos occurs in serpentinized peridotite.

WORK DONE: Surface geological mapping, 1 inch equals 1,000 feet covering BAK 1-34 and WP 1-14; magnetometer survey, 21.1 line-miles covering all BAK and WP claims; road construction, one-half mile on WP 1-4; surface diamond drilling, six holes totalling 2,200 feet on WP 1-4.

CASSIAR MINE (No. 51, Fig. A)

By A. D. Tidsbury

LOCATION: Lat. 59° 19.6′ Long. 129° 49.4′ (104P/5W)
LIARD M.D. Between 5,870 and 7,000 feet elevation on Mount McDame, 3 miles north of Cassiar.

CLAIMS: Forty-two Crown granted and five leased.

ACCESS: By gravel road 86 miles from Mile 648.8, Alaska highway. The mine is 7 miles by road from Cassiar.

OWNER: CASSIAR ASBESTOS CORPORATION LIMITED, 1001, 85 Richmond Street West, Toronto, Ont.; mine office, Cassiar.

WORK DONE:

The mill addition, begun in 1970, was completed and put into service. Other construction included: One 50-ton truck-loading bin at the primary concentrator; eight houses in the townsite; services for 13 trailer lots and 4 house lots; a 20-foot extension to the powerhouse and installation of a diesel-powered generator.

Mine production was 983,234 tons of ore and 5,445,146 tons of waste. The primary concentrator treated 983,234 tons and the mill 739,954 tons to produce 87,244 tons of fibre.

Surface drilling totalled 10,374 feet in 10 holes.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 487.

BARITE

ROK, CAT **(No. 41, Fig. G)**

LOCATION: Lat. 49° 13.5′ Long. 114° 41.5′ (82G/2E)
Report on this property under metals in section 82G/2E.

LARRABEE **(No. 73, Fig. G)** By J. W. McCammon

LOCATION: Lat. 50° 28′ Long. 116° 06.5′ (82K/8E)
GOLDEN M.D. At 3,980 feet elevation, 4 miles southwest of Invermere.

CLAIMS: GOOD LUCK 3 to 5; DREADNAUGHT (Lot 11031).

ACCESS: By dirt road west and south from the Invermere Hotel via 14th Street, 7.6 miles.

DESCRIPTION:

On the Larrabee property an irregular faulted mass of barite cuts across a band of quartz-sericite phyllite. The phyllite is part of the Proterozoic Mount Nelson Formation.

The showings are on the end and down the steep east slope of a lightly wooded ridge. Natural exposures of bedrock are rare. Workings reveal broken segments of barite vein for 450 feet horizontally along a southwest strike. Exposures visible in 1971 are shown on the accompanying plan (Fig. 54). The barite is partly white and nearly pure but most is discoloured and dark or iron stained. Material shipped had a specific gravity ranging from 4.06 to 4.41. Some sulphides, chiefly pyrite or grey copper, are visible occasionally. The country rock is highly sheared and schisted.

WORK DONE: Baroid of Canada, Ltd. worked the deposit and shipped about 10,000 tons of barite in 1959 and 1960. There has been no apparent activity on the property since 1960. The workings consist of two open cuts as shown on the plan and a considerable amount of stripping down the steep slope below the cuts.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1960, p. 135 (Baroid of Canada, Ltd.).

YORNOC **(No. 89, Fig. G)**

LOCATION: Lat. 50° 19′ Long. 116° 14′ (82K/8E)
Report on this property under metals in section 82K/8E.

SHELLY, CAROLE **(No. 88, Fig. G)**

LOCATION: Lat. 50° 19′ Long. 116° 15′ (82K/8W)
Report on this property under metals in section 82K/8W.

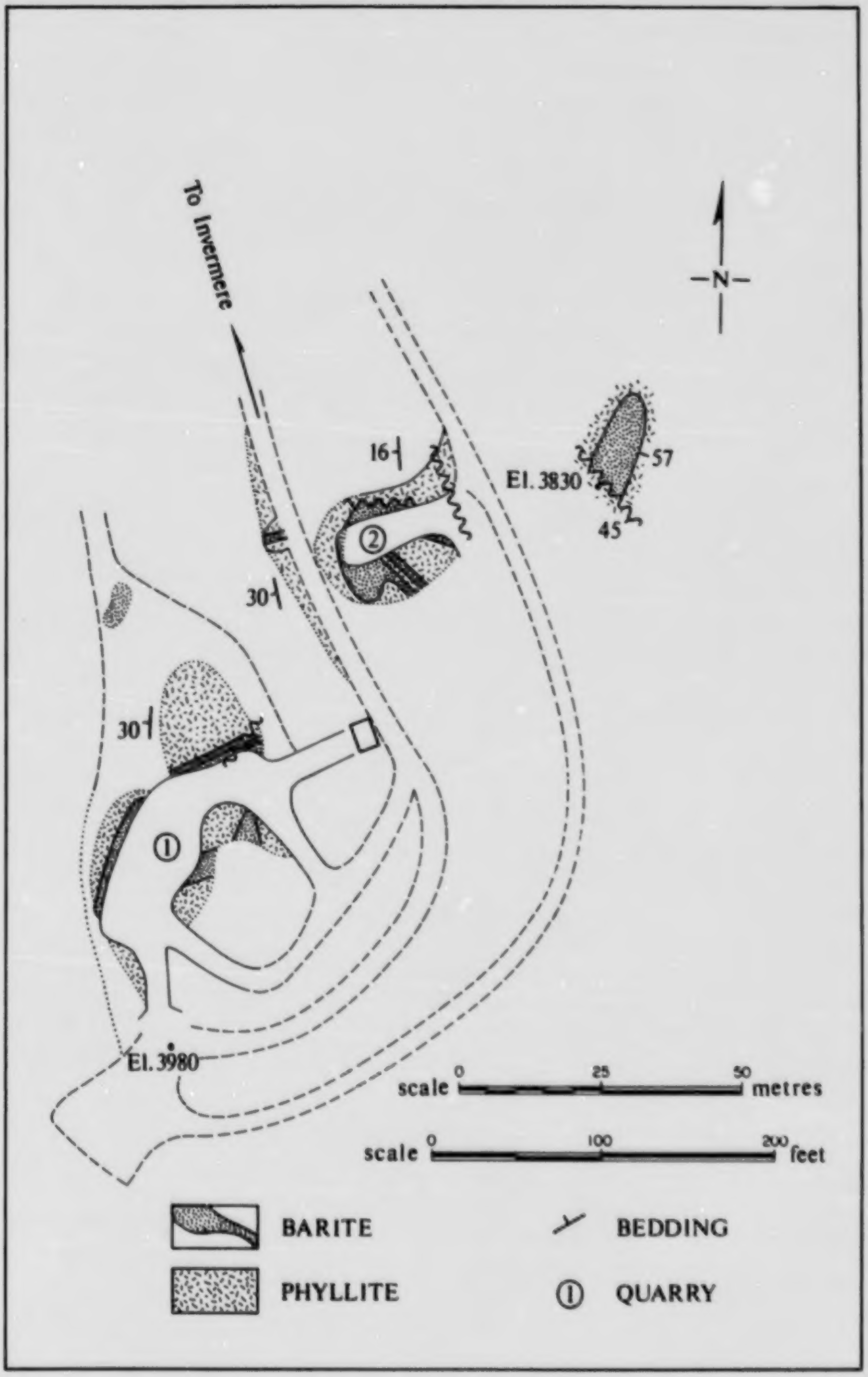
To Invermere
N
16
30
30
②
①
El. 3830
57
45
El. 3980
scale 0 25 50 metres
scale 0 100 200 feet
BARITE
PHYLLITE
BEDDING
① QUARRY

Figure 54. Larrabee barite quarry.

TOBY CREEK BARITE (No. 168, Fig. G)

LOCATION: Lat. 50° 21′ Long. 116° 24.4′ (82K/8W)
GOLDEN M.D. Near the southwest corner of Lot 16154 on Toby Creek at the mouth of Jumbo Creek, 20 miles southwest of Invermere.

CLAIMS: JUMBO.

ACCESS: By road up the north side of Toby Creek from Wilmer.

OWNER: MOUNTAIN MINERALS LIMITED, Box 700, 529 Sixth Street South, Lethbridge, Alta.

WORK DONE: The newly constructed mill operated through the summer and fall months. A total of 4,722 tons of barite concentrate was recovered from 20,059 tons of tailings. No barite was shipped because of lack of demand. The concentrate was kept at a stockpile near the millsite.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 489.

BRISCO BARITE (No. 169, Fig. G)

LOCATION: Lat. 50° 49.8′ Long. 116° 19.5′ (82K/16W)
GOLDEN M.D. Between Templeton River and Dunbar Creek, 2.5 miles west of Brisco.

CLAIMS: WAMINECA (Lot 15044), CANYON (Lot 15045), SALMON (Lot 15046), CARMINE (Lot 15047), NORTHISLE (Lot 15048).

ACCESS: West from Highway 95 at Brisco, 4.3 miles.

OWNER: MOUNTAIN MINERALS LIMITED, Box 700, 529 Sixth Street South, Lethbridge, Alta.

WORK DONE: Mining operations were suspended during the early part of 1971, and approximately 4,523 tons of barite was shipped from the stockpile at the mine to the company plant at Lethbridge. Nine holes were drilled, with a total footage of 1,344 feet, to further explore the extent of the deposit.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 489.

BAROID OF CANADA (No. 160, Fig. G)

LOCATION: Lat. 50° 56′ Long. 116° 29′ (82K/16W)
GOLDEN M.D. At 3,100 feet elevation, on the west side of Jubilee Mountain, 5.5 miles northwest of Spillimacheen.

CLAIMS: Former Silver Giant mine property.

ACCESS: By road, 8 miles northwest from Spillimacheen.

OWNER: BAROID OF CANADA, LTD., Box 250, Onoway, Alta.

WORK DONE: The company recovered 16,323 tons of crude barite concentrate from the tailings of the former Silver Giant mine. The concentrate was hauled by truck from the millsite to a car-loading station at Spillimacheen and then shipped by rail to Onoway, Alberta, for further treatment.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 489.

HOMESTAKE (No. 172, Fig. G)

LOCATION: Lat. 51° 04'-07' Long. 119° 45'-51' (82M/4W)
Report on this property under metals in section 82M/4W.

PARSON BARITE (No. 166, Fig. G)

LOCATION: Lat. 51° 01.5' Long. 116° 39' (82N/2E)
GOLDEN M.D. At 3,700 feet elevation 3.5 miles due south of Parson.

CLAIMS: HILLTOP (Lot 14351), SNOWDROP (Lot 14352), HONEST JOHN (Lot 15734).

ACCESS: By Cranbrook Sawmills logging road south from Highway 93 at Parson, 5 miles.

OWNER: MOUNTAIN MINERALS LIMITED, Box 700, 529 Sixth Street South, Lethbridge, Alta.

WORK DONE: No mining was carried out, but 430 tons of barite was shipped from the stockpile at the mine portal to Lethbridge.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 490.

WOLF (No. 13, Fig. B)

LOCATION: Lat. 59° 44.2' Long. 127° 14' (94M/11, 14E)
LIARD M.D. From 1 to 3 miles northeast of Mile 548 on the Alaska highway.

CLAIMS: WOLF 1 to 40.

ACCESS: Via the Alaska highway.

OWNER: DRESSER INDUSTRIES, INC., 301 Chevron Building, 415 Third Street SW., Calgary, Alta.

WORK DONE: A helicopter-borne magnetometer survey was flown over the claims in 1970.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1965, p. 257 (Bear, Moose, Beaver groups); Assessment Reports 767, 2880.

BUILDING STONE

RAMSHEAD QUARRIES (No. 111, Fig. G)

LOCATION: Lat. 49° 01.9' Long. 118° 22.8' (82E/1W)
At 1,900 feet elevation, just east of Morrissey Creek, about 900 feet north of Highway 3 at a point 3 miles east of Grand Forks.

ACCESS: From Highway 3 by roads across an open pasture.

OPERATOR: SEBAC ENTERPRISES LTD., Box 56, Cascade.

WORK DONE: This company took over the quarries from Ramshead Quarries Ltd. in 1971. They made improvements to the equipment, especially in the marble crushing and screening plant, produced some marble, and shipped several orders of quartzite building stone.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 490.

DOLO (No. 52, Fig. G)

By J. W. McCammon

LOCATION: Lat. 49° 01.3′ Long. 118° 57.9′ (82E/2W)
At 3,400 feet elevation south of Myers Creek, near the southeast of Lot 446s, 3.5 miles southeast of Rock Creek settlement.

ACCESS: By road south and east from Rock Creek via the Harpur ranch, 8.8 miles.

OPERATOR: NEW DOLOMITE WHITE MINING LIMITED, Box 66, Kelowna.

DESCRIPTION:

This company is developing a quarry in a lens of dolomite that is associated with altered volcanic and sedimentary rocks of the Permian (?) Anarchist Group. The dolomite forms the top of a projecting knoll. The sparse overburden originally present has been removed from an area 400 feet long in a north direction and 200 feet wide. Bare rock is exposed in patches beyond these limits.

At the quarry a band of rusty altered rock 15 to 30 feet wide, probably originally greywacke, is exposed along the west side. The band strikes north and dips 40 degrees east. It may represent the attitude of the rock group as a whole. No other exposures were examined that revealed the attitude of the rocks.

The dolomite is relatively white with occasional creamy patches. Most is fine grained. It consists of the mineral dolomite with scattered grains, tiny patches, and thin veinlets of quartz and traces of talc. Irregular, variably spaced fractures are present throughout the rock.

Two samples were taken for chemical analysis. A random grab sample of pieces from the crushed stockpile of 1½ to ¾-inch rock contained: CaO = 30.76, MgO = 18.26, Insol. = 6.36, R_2O_3 = 0.26, Fe_2O_3 = 0.12, MnO = 0.01, P_2O_5 = 0.003, SO_3 = 0.01, Ig. loss = 44.13, H_2O (105° C) = 0.01. A similar sample from the minus ½-inch pile contained: CaO = 30.70, MgO = 18.05, Insol. = 6.74, R_2O_3 = 0.37, Fe_2O_3 = 0.15, MnO = 0.01, P_2O_5 = 0.002, SO_3 = 0.02, Ig. loss = 43.95, H_2O (105° C) = 0.01. The fractures and quartz veinlets would probably prevent this stone from being used for polished marble sheets or slabs.

WORK DONE:

A haulage road was built from the quarry to the Harpur ranch using part of an abandoned railway grade. An area approximately 400 feet long and 200 feet wide was stripped on the top of the dolomite knoll. A quarry was opened up having a top bench 40 feet wide by 50 feet long with a 10-foot-high face, and a lower bench 120 feet wide and 120 feet long with a 15-foot-high face. A large pile of dolomite was crushed and sized in a portable crushing plant. Two sizes of crushed rock, (a) 1½ inch to ¾ inch and (b) minus ½ inch, were bagged and pieces of facing rock as large as 18 inches by 2 feet were sorted and stacked on pallets.

SHEEP CREEK (No. 113, Fig. G)

LOCATION: Lat. 49° 08.5′ Long. 117° 08.5′ (82F/3E)
Various talus slopes on Waldie and Sheep Valley sides, near the junction of these creeks.

WORK DONE: A small production of quartzite facing stone was sold on the local market.

INTERNATIONAL MARBLE & STONE PLANT AND QUARRY

LOCATION: Lat. 49° 15.5′ Long. 116° 38.5′ (82F/7E)
East side of Highway 3, about 1 miles north of Sirdar.
OWNER: INTERNATIONAL MARBLE & STONE COMPANY LTD., 4030 Seventh Street SW., Calgary, Alta.
WORK DONE: About 25,000 tons of crushed and sized rock products, much of it dolomite, was produced.

CRAWFORD CREEK DOLOMITE QUARRY (No. 112, Fig. G)

LOCATION: Lat. 49° 41.5′ Long. 116° 48′ (82F/10W)
On the southeast side of Crawford Creek, about 1.5 miles from Crawford Bay.
OWNER: INTERNATIONAL MARBLE & STONE COMPANY LTD., 4030 Seventh Street SW., Calgary, Alta.
WORK DONE: About 50,000 tons of dolomite rock was mined underground.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 492.

HILLS TRAVERTINE (No. 163, Fig. G)

LOCATION: Lat. 50° 06.7′ Long. 117° 27.3′ (82K/3W)
On Arthur Creek, about 2 miles east of Hills, at an elevation of 4,600 feet.
ACCESS: Via a newly constructed access road from Hills along the north side of Arthur Creek.
OWNER: E. J. COUCH, 827 Ioco Road, Port Moody.
DESCRIPTION: There are several deposits of travertine east of Hills; some appear to contain appreciable tonnages of attractive material suitable for cutting and polishing for facing stone.
WORK DONE: A rough tractor road was built to the main showings on Arthur Creek.

PITT RIVER QUARRY (No. 267, Fig. E)

LOCATION: Lat. 49° 17.4′ Long. 122° 39.3′ (92G/7E)
East bank of Pitt River, on northern side of Sheridan Hill, 4 miles north of Pitt Meadows.
ACCESS: By road, 5 miles from Pitt Meadows.
OWNER: PITT RIVER QUARRIES LTD., 16211 – 84th Avenue, Surrey.
WORK DONE: Eight men quarried 20,000 tons and shipped 60,900 tons of quartz diorite.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 493.

GILLEY QUARRY (No. 266, Fig. E)

LOCATION: Lat. 49° 19.2′ Long. 122° 40.5′ (92G/7E)
On west bank of Pitt River, immediately south of the mouth of Munro Creek.

ACCESS: By road, 7.5 miles from Coquitlam.
OWNER: CONSTRUCTION AGGREGATES LTD., 231 West Esplanade, North Vancouver.
WORK DONE: Fourteen men produced quartz diorite for crushed rock, riprap, and armour rock.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 492.

VALLEY GRANITE PRODUCTS (No. 271, Fig. E)

LOCATION: Lat. 49° 15.5′ Long. 121° 40.5′ (92H/5E)
West side of Highway 1, 10 miles west of Hope.
OWNER: VALLEY GRANITE PRODUCTS LIMITED, 10070 Timberline Place, Chilliwack.
WORK DONE: Granite products, including poultry grits, stucco dash, and sand blast materials produced, 3,500 tons.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 494.

MINETTE BAY QUARRY (No. 24, Fig. C)

LOCATION: Lat. 54° 00.7′ Long. 128° 37.5′ (103I/2E)
ACCESS: On Kitimat village road, 4 miles south of Highway 25.
OWNER: Aluminum Company of Canada Ltd.
OPERATOR: L. G. SCOTT AND SONS CONSTRUCTION LTD., Box 156, Kitimat.
WORK DONE: Four men quarried 11,500 tons of riprap on demand basis during the summer months.

ANDERSON CREEK QUARRY (No. 23, Fig. C)

LOCATION: Lat. 54° 05′ Long. 128° 42′ (103I/2E)
ACCESS: By Highway 25.
OWNER: Aluminum Company of Canada Ltd.
OPERATOR: L. G. SCOTT AND SONS CONSTRUCTION LTD., Box 156, Kitimat.
WORK DONE: Four men worked intermittently during the summer months to produce 33,000 tons of shot rock and riprap.

CEMENT

OCEAN CEMENT LIMITED

LOCATION: Lat. 48° 35.1′ Long. 123° 31.2′ (92B/12E)
At Bamberton.
OWNER: OCEAN CEMENT LIMITED (B.C. Cement Division), north foot of Columbia Street, Vancouver 4.
WORK DONE: Cement produced, 490,170 tons.

CANADA CEMENT LAFARGE LTD.

LOCATION: Lat. 49° 09.6' Long. 123° 00' (92G/3E)
On the Fraser River, south shore of Lulu Island, at the foot of No. 9 road.
OWNER: CANADA CEMENT LAFARGE LTD., head office, 1051 Main Street, Vancouver 4.
WORK DONE: Cement produced, 307,643 tons.

CANADA CEMENT LAFARGE LTD.

LOCATION: Lat. 50° 39.7' Long. 120° 03.3' (92I/9E)
On the north bank of the South Thompson River, 11 miles east of Kamloops.
OWNER: CANADA CEMENT LAFARGE LTD., head office, 1051 Main Street, Vancouver 4.
WORK DONE: Cement produced, 121,435 tons.

CLAY AND SHALE

THUNDER HILL (No. 167, Fig. G)

LOCATION: Lat. 50° 09' Long. 115° 49.9' (82J/4W)
At the bottom of Thunder Hill, 2 miles west of Canal Flats.
CLAIMS: THUNDER HILL 1 and 2.
ACCESS: From Highway 93 at Canal Flats.
OWNER: MOUNTAIN MINERALS LIMITED, Box 700, 529 Sixth Street South, Lethbridge, Alta.
WORK DONE: Shale mined, loaded, and shipped to the company plant at Lethbridge for processing, 2,096 tons.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 387.

HILLBANK SHALE QUARRY (No. 228, Fig. E)

LOCATION: Lat. 48° 43.1' Long. 123° 39.4' (92B/12E)
On east bank of Koksilah River, 1 mile southeast of Cowichan Station.
ACCESS: Road from Hillbank.
OWNER: BRITISH COLUMBIA CEMENT COMPANY LIMITED, R.R. 1, Mill Bay.
DESCRIPTION: The quarry is in steeply dipping Upper Cretaceous marine shale of the Haslam Formation.
WORK DONE: Shale produced for use in Bamberton cement plant, 28,420 tons.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 495.

BRITISH COLUMBIA LIGHTWEIGHT AGGREGATES LTD. (No. 229, Fig. E)

LOCATION: Lat. 48° 48.1' Long. 123° 11' (92B/14E)
On the peninsula between Winter Cove and Lyall Harbour, north end of Saturna Island.

OWNER: BRITISH COLUMBIA LIGHTWEIGHT AGGREGATES LTD., 855 West Broadway, Vancouver 9.

WORK DONE: Renewal of the loading facilities was begun. Twenty-one men mined 85,200 tons of shale and produced and shipped 79,200 tons of expanded shale aggregate.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 495.

DUNSMUIR SHALE PIT (No. 268, Fig. E)

LOCATION: Lat. 49° 11.8′ Long. 124° 05.5′ (92F/1E)

At 900 feet elevation, in the northeast part of Block 226, Dunsmuir Land District, adjoining Weigles (Black Jack, Dumont) road on the north, 2 miles south and west of the powerline crossing at Brannen Lake.

ACCESS: By Weigles road from Highway 19.

OWNER: CANADA CEMENT LAFARGE LTD., 1051 Main Street, Vancouver 4.

WORK DONE: The area stripped and ready for quarrying is about 800 feet wide and 2,500 feet long. The upper 15 feet of shale was highly fractured and was dug out using a 955-K Caterpillar track loader. The shale below this layer is loosened by a 988 Caterpillar bulldozer equipped with a ripper tooth. This shale is then pushed into a stockpile, where the pieces tend to weather and shatter readily. The shale is loaded into trucks, hauled to a stockpile at the dock, and barged to the cement plant at Lulu Island. During 1971, 57,395 tons of shale was mined and shipped.

REFERENCES: *Geol. Surv., Canada*, Map 49-1963, Alberni; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 496.

RICHMIX QUARRY (No. 230, Fig. E)

LOCATION: Lat. 49° 03.5′ Long. 122° 11.7′ (92G/1E)

Adjoining Kilgard to the northeast.

OWNER: RICHMIX CLAY PRODUCTS LIMITED, 2890 East Kent Avenue, Vancouver 12.

WORK DONE: Fireclay quarried and trucked to the plant in Vancouver, where firebrick was manufactured, 6,055 tons.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 496.

CANADIAN REFRACTORIES (No. 231, Fig. E)

LOCATION: Lat. 49° 03.2′ Long. 122° 17.3′ (92G/1W)
49° 03.5′ 122° 11.7′ (92G/1E)

Plant at Abbotsford; mine and quarries at Kilgard.

OWNER: DRESSER INDUSTRIES CANADA LTD. (Canadian Refractories Division), Box 160, Abbotsford.

WORK DONE: Clay produced by seven men from underground fireclay mine at Kilgard, 22,240 tons; clay produced by eight men from No. 9, Straiton, and Selby open pits, 64,289 tons.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 497.

HANEY BRICK AND TILE LIMITED (No. 269, Fig. E)

LOCATION: Lat. 49° 12.6′ Long. 122° 35.9′ (92G/2E)
On the north bank of Fraser River at the east edge of Haney.

OWNER: HANEY BRICK AND TILE LIMITED, Box 38, Maple Ridge.

WORK DONE: During the year 5,000 tons of clay was quarried adjacent to plant and manufactured into hollow clay drain tile, structural tile, facebrick, common brick, flue lining, and flower pots.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 497.

DIATOMITE

CROWNITE INDUSTRIAL MINERALS LTD.

LOCATION: Lat. 52° 57.6′ Long. 122° 32.2′ (93B/15E)
Quarry on Lot 906, 1.5 miles southwest of West Quesnel. Plant at the south end of the old bridge over the Quesnel River at its junction with the Fraser River.

ACCESS: The quarry is reached by gravel road from West Quesnel, 1.5 miles.

OWNER: CROWNITE INDUSTRIAL MINERALS LTD., Box 200, Calgary, Alta.

WORK DONE: Running-in trials continued in the new processing plant built in 1970. Material processed and shipped included 1,550 tons of diatomite and 3,460 tons of 'burnt shale' pozzolan.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 497.

FLUORITE

ROK, CAT (No. 41, Fig. G)

LOCATION: Lat. 49° 13.5′ Long. 114° 41.5′ (82G/2E)
Report on this property under metals in section 82G/2E.

GREEN GABLES (No. 104, Fig. G)

LOCATION: Lat. 50° 13′ Long. 119° 28.7′ (82L/3W)
VERNON M.D. On Bursary Mountain, west side of Okanagan Lake 2 miles southwest of the mouth of Whiteman Creek.

CLAIMS: FLUORITE 1 to 6, SPARITE 1 to 4, SPAR 2 to 5, LAKEVIEW 1 to 3, AH 1 to 5, JAC 1 to 8 (formerly known as Green Gables, Whiteman Creek, and Lakeview).

ACCESS: One-third of a mile north on a side road off the Bouleau Lake road 1 mile from the Westside road junction.

OPERATOR: CERRO MINING COMPANY OF CANADA LIMITED, 401, 1111 West Georgia Street, Vancouver 5.

WORK DONE: Geological and geochemical surveys.

REFERENCES: *Minister of Mines, B.C.*, 1968, p. 299; Assessment Report 3393.

TAM (No. 14, Fig. B)

LOCATION: Lat. 59° 20'-40' Long. 126° 00'-30' (94M/8, 9)
LIARD M.D. Between 2,700 and 2,800 feet elevation on the north side of the Alaska highway, north of Liard Hotsprings Provincial Park, at Mile 497.

CLAIMS: TAM 1 to 151, WEST 1 to 128, HAL 1 to 53, TEE 1 to 140, FIRE 1 to 109, FALL 1 to 106, PET 1 to 100.

ACCESS: From the Alaska highway by four-wheel-drive vehicle from Mile 497 turnoff.

OWNERS: CONWEST EXPLORATION COMPANY LIMITED and JOREX LIMITED, 904, 85 Richmond Street West, Toronto 1, Ontario.

DESCRIPTION: Barite and fluorite replace carbonates in a basal limestone breccia at an angular unconformity; the overlying unit consists of Middle Devonian limestones, the underlying unit, Upper Devonian and Mississippian shales.

WORK DONE: Topography and surface workings mapped; geological mapping, 1 inch equals 50 feet covering Tam 2, 4, 6, 23, 24, Fire 45-48, and West 55 to 58; road construction, 8 miles of access road for four-wheel-drive vehicles and 4 miles of subsidiary roads to showings and drill sites; trenching, 5,000 feet on Tam 1-4, 6, 23, 24, Fire 46, 48, and West 55-58; stripping, 107,000 square feet on Tam 1-4, 6 and West 55-58; surface diamond drilling, 14 holes totalling 1,891 feet on Tam 2, 4 and West 55, 57.

SNOW (No. 35, Fig. B)

LOCATION: Lat. 59° 04.6' Long. 125° 39' (94N/4E)
LIARD M.D. Five miles east-northeast of Mile 465, near the north end of Muncho Lake, on the Alaska highway.

CLAIMS: SNOW 9 to 48.

ACCESS: By helicopter from Mile 465, Alaska highway, 5 miles.

OWNER: CONWEST EXPLORATION COMPANY LIMITED, 1001, 85 Richmond Street West, Toronto 1, Ont.

DESCRIPTION: Fluorite occurs as fracture fillings and partial replacement of brecciated Middle Devonian limestone which has been thrust faulted over a shale horizon.

WORK DONE: Surface geological mapping, 1 inch equals 20 feet covering a portion of Snow 17, 19, 29, and 40; trenching, 64.6 cubic yards covering a portion of the same claims.

GYPSUM

WESTERN GYPSUM LIMITED (No. 161, Fig. G)

LOCATION: Lat. 50° 30' Long. 115° 54' (82J/5W)
GOLDEN M.D. The quarry is between 4,000 and 5,000 feet elevation on the north side of Windermere Creek, 8 miles east of Windermere.

CLAIMS: The company holds 41 Crown-granted claims.
ACCESS: By private paved road from Wilmer, 11 miles.
OWNER: WESTERN GYPSUM LIMITED, 1650 Lakeshore Highway, Clarkson, Ont.; quarry address, Box 217, Invermere.
WORK DONE:

A total of 373,650 tons of gypsum was mined at the quarry, put through the primary crusher, loaded, and hauled by truck to the plant at Wilmer. A total of 335,659 tons was treated at the secondary crushing and screening plant at Wilmer, then loaded and shippped by rail to plants at Calgary and Vancouver. A further 30,000 tons of gypsum fines was shippped from the stockpile at Wilmer to Calgary and Vancouver.

Loading and primary crushing of gypsum in the quarry and hauling to Wilmer is stopped during the winter months. Stripping of overburden at the quarry is carried on throughout the year.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 497.

JADE (NEPHRITE)

Jade (nephrite) is known to occur in bedrock as well as in alluvial deposits in a variety of localities. These are on Fraser, Bridge, and Coquihalla Rivers; Hell, Marshall, and Noel Creeks; O'Ne-el, Kwanika, and Ogden Creeks and Mount Ogden in the Omineca area; and on Seywerd, Wheaton, and Thibert Creeks and Cassiar Mountains in the Cassiar-Dease Lake area.

In 1971 production was recorded by the following companies and individuals:

E. Osterlund, Bridge River
R. Purvis, Fraser River
Far North Jade Ltd., Mount Odgen
Demsey Mines Ltd., Wheaton Creek
New World Jade Ltd., Mount Ogden
Birkenhead Jade Mines Ltd., Yalakom River

GREENBAY (No. 290, Fig. E)

LOCATION: Lat. 50° 51.8′-54.8′ Long. 122° 30′-33.1′ (92J/15E)
LILLOOET M.D. On the north side of Marshall Creek.
CLAIMS: GREENBAY, BLUE, JOHN, JIM, GB, totalling 32.
ACCESS: About 50 miles by road from Lillooet.
OWNER: GREEN BAY EXPLORATION AND MINING CO. LTD., Box 36, Chilliwack.
DESCRIPTION: Nephrite occurs *in situ* in shear zones in serpentinized peridotite.
WORK DONE: An area of 3,000 square feet was stripped to a depth of 30 feet on the Blue 1 and 2 claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, pp. 498, 499.

BIRKENHEAD (No. 269, Fig. E)

LOCATION: Lat. 50° 50' Long. 122° 17' (92J/16W)
LILLOOET M.D. Northwest from the head of Hell Creek, at an elevation of 7,500 feet.
CLAIMS: BIRKENHEAD 1 to 16.
ACCESS: Seventeen miles by truck from the Yalakom River road.
OWNER: Birkenhead Jade Mines Ltd.
OPERATOR: B.C. GEM SUPPLY LTD., 426 Homer Street, Vancouver 3.
WORK DONE: One thousand feet of trenching and 5,000 square feet of stripping on the Birkenhead 4 and 5 claims.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 499.

LIMESTONE

COBBLE HILL QUARRY (No. 232, Fig. E)

LOCATION: Lat. 48° 40.6' Long. 123° 37.4' (92B/12E)
At southwest corner of Cobble Hill, 2 miles southwest of Cobble Hill Station.
OWNER: BRITISH COLUMBIA CEMENT COMPANY LIMITED, R.R. 1, Mill Bay.
WORK DONE: Limestone produced for use in Bamberton cement plant, 701,580 tons.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 499.

SPENCER CREEK LIME QUARRY (No. 270, Fig. E)

LOCATION: Lat. 48° 58' Long. 124° 51' (92C/15W)
Between the forks of Spencer Creek on T.L. 8122 and T.L. 6886, east side of Alberni Inlet, 21 miles south of Port Alberni.
ACCESS: From Franklin River Camp along the Spencer Creek road, and then one-half mile by logging road.
OWNER: GILBERT MINES CANADA LTD., 2412 Columbia Street, Vancouver 10.
WORK DONE: A survey was made along the proposed route of a 2-mile-long road from the quarry site to tidewater. Marketing and transportation studies are being conducted and barge-loading facilities are being designed.
REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 318.

IMPERIAL LIMESTONE QUARRY (No. 233, Fig. E)

LOCATION: Lat. 49° 44.4' Long. 124° 31.7' (92F/10E)
On the summit of the hill on Lot 500, three-quarters of a mile southwest of Spratt Bay on the north coast of Texada Island, 2 miles southeast of Vananda.
OWNER: IMPERIAL LIMESTONE COMPANY LIMITED, 5427 Ohio Avenue South, Seattle 98134, Wash.

WORK DONE: Quarry operated on Lot 500, stucco and whiting produced in plant at Vananda dock, whiting and coarse limestone produced at Spratt Bay. Limestone produced, 160,000 tons. New construction during the year included the erection of an additional storage building.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 499.

IDEAL CEMENT QUARRY (No. 234, Fig. E)

LOCATION: Lat. 49° 42.9′ Long. 124° 33.8′ (92F/10E)
On Lot 25, Texada Island, about 2.5 miles south of Vananda.

OWNER: IDEAL CEMENT COMPANY (Rock Products Division), 610, 1200 West Pender Street, Vancouver 1.

WORK DONE: Limestone quarried, 1,041,000 tons; limestone shipped, 1,082,000 tons.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 500.

BEALE QUARRY (No. 235, Fig. E)

LOCATION: Lat. 49° 45′ Long. 124° 31.9′ (92F/15E)
On north coast of Texada Island, 1 mile southeast of Vananda.

OWNER: CANADA CEMENT LAFARGE LTD. (Pacific Region), 1051 Main Street, Vancouver 4.

WORK DONE: Limestone quarried, 1,050,000 tons; limestone shipped, 905,000 tons.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 500.

DOMTAR QUARRY (No. 10, Fig. E)

LOCATION: Lat. 49° 47.2′ Long. 124° 37.1′ (92F/15E)
North end of Texada Island on Lots 13, 17, 22, 23, 34 to 39, 271, 305, and 350.

ACCESS: By road, 1 miles from Blubber Bay.

OWNER: DOMTAR CHEMICALS LIMITED (Lime Division), 470 Granville Street, Vancouver 1.

WORK DONE: Limestone quarried, 824,900 tons; limestone shipped, 654,900 tons.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 500.

PENINSULA LIME AND MAGNESIA QUARRY (No. 118, Fig. E)

By J.W. McCammon

LOCATION: Lat. 49° 35.4′ Long. 123° 52.7′ (92G/12W)
At 2,600 feet elevation, three-quarters of a mile northwest of Carlson Lake and 5.5 miles northeast of Halfmoon Bay.

ACCESS: By logging road northeast from Halfmoon Bay, 7 miles.

OPERATOR: PENINSULA LIME AND MAGNESIA LTD., 8744 Joffre Avenue, Burnaby.

DESCRIPTION:

This company is attempting to develop a deposit of limestone and dolomite to produce various colours and sizes of crushed and slab stone for the building industry.

The deposit is in a zone of low relief along the southwest side of the base of a hill. Much of the area has been logged off and is now overgrown with dense second growth vegetation. Outcrops are moderately scarce and irregularly distributed.

The carbonate rocks are interbedded with metasedimentary and metavolcanic rocks that form a pendant in quartz diorite. Similar rocks 4 miles to the northwest have been mapped as part of the Jervis Group of Cretaceous or earlier age. The rocks strike northerly and dip moderately to steeply to the east.

At the main showing a quarry face has been cleaned off for 450 feet along the east side at the base of a north trending ridge about 50 feet high. The rock exposed is medium to fine-grained grey and white-striped limestone. The striping in some places is in parallel bands one-eighth to one-quarter inch apart, and in other places it is irregular and forms patches of white or grey rock. In thin section the limestone is seen to consist of fine-grained strained calcite crystals with scattered quartz grains and stray flakes of muscovite. Pyrite grains occur occasionally, particularly near dykes. A preferred orientation of crystals is well developed. The limestone forms a band 100 to 150 feet wide. A sample of chips gathered at random from fresh muck along 70 feet of freshly blasted face 100 feet north of the crusher plant had the following percentage composition: CaO = 54.09, MgO = 0.40, Insol. = 2.12, R_2O_3 = 0.51, Fe_2O_3 = 0.20, MnO = 0.01, P_2O_5 = 0.001, SO_3 Ig. loss = 42.97, H_2O (105° C) = 0.04.

A shallow depression lacking outcrop separates the limestone from altered gneissic looking greywacke 75 feet to the east. On the west side of the limestone is a parallel band of rusty siliceous tuff about 40 feet wide. West of the tuff is a 100 to 150-foot-wide band of andesite porphyry and next to it is 100 feet of dolomite.

A small quarry has been started on the west edge of the dolomite exposure 200 feet west of the crusher plant. The rock is fine grained, light and dark grey, and laced with random white quartz and carbonate veinlets. Thin sections show it is composed of fine-grained strained dolomite with a few scattered grains of quartz and some chlorite. The veinlets are generally composed of dolomite but a few are of quartz. A sample of random chips collected from freshly blasted rock at the quarry site had the following composition: CaO = 30.28, MgO = 20.86, Insol. = 1.18, R_2O_3 = 1.24, Fe_2O_3 = 0.23, MnO = 0.04, P_2O_5 = 0.06, SO_3 = 0.02, Ig. loss = 46.39, H_2O (105° C) = 0.04.

The hill northeast of the crusher plant and quarries consists of quartz diorite. In cuts in a logging road that skirts the western base of the hill, limestone and dolomite are exposed. In a cut 1,200 feet north of the crusher plant, striped grey limestone similar to that at the quarry occurs. The exposure is of small areal extent. The ground between the limestone and quartz diorite, a short distance to the east, is covered. About 600 feet farther north along the road a hole has been blasted in a low bluff of white dolomite. There are small outcrops of striped limestone 25 feet to either side of the dolomite. The dolomite is medium-grained, recrystallized, white rock. A sample of random chips picked from fresh muck contained: CaO = 31.09, MgO = 20.50, Insol. = 0.57, R_2O_3 = 1.08, Fe_2O_3 = 0.30, MnO = 0.04, P_2O_5 = 0.001, SO_3 = 0.01, Ig. loss = 46.96, H_2O (105° C) = 0.02

When the property was visited at the end of August 1971 no other workings were developed and little exploration work had been done to trace the limestone and dolomite bands along strike. Scattered outcrops of the carbonates occur north and south of the workings for considerable distances.

WORK DONE: A quarry face 450 feet long was prepared in limestone, a small face was prepared in dolomite, camp accommodation was under construction, and a crushing and screening plant consisting of a bin, grizzly, jaw crusher, impacter, and screens was being assembled.

FRASER VALLEY LIME (No. 265, Fig. E)

LOCATION: Lat. 49° 12′ Long. 121° 43.2′ (92H/4E)
East side of Highway 1, three-quarters of a mile east of Popkum.
OWNER: FRASER VALLEY LIME SUPPLIES, 976 Adair Avenue, Coquitlam.
WORK DONE: The pit remained closed and there was no production during the year. Some ground limestone bought elsewhere was bagged.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 500.

HARPER RANCH QUARRY (No. 84, Fig. E)

LOCATION: Lat. 50° 40.3′ Long. 120° 03.9′ (92I/9E)
On the north side of the South Thompson River, 11 miles east of Kamloops on Fractional Section 6, Township 20, Range 15, west of the 6th meridian.
ACCESS: By Highway 1 from Kamloops, 11 miles.
OWNER: CANADA CEMENT LAFARGE LTD. (Pacific Region), 1051 Main Street, Vancouver 4.
WORK DONE: Percussion drilling, 19 holes totalling 1,500 feet; rock shipped, 155,943 tons.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 500.

DAHL LAKE QUARRY (No. 184, Fig. D)

LOCATION: Lat. 53° 47.5′ Long. 123° 17′ (93G/14W)
On the hill at the northeast corner of Dahl Lake, 22 miles southwest of Prince George.
ACCESS: A 6-mile-long gravel road from the quarry joins Highway 16 on the south side, 22 miles west of Prince George.
OPERATOR: KOKANEE CONTRACTING LIMITED, Box 518, Prince George.
WORK DONE: Crushed, washed, and screened limestone produced, 39,000 tons.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 502.

PTARMIGAN CREEK QUARRY (No. 185, Fig. D)

LOCATION: Lat. 53° 41.5′ Long. 120° 53.8′ (93H/10W)
Beside the Canadian National Railway tracks at Ptarmigan Creek, 2 miles west of Urling.
OPERATOR: QUESNEL REDIMIX CEMENT CO. LTD., Box 2139, Quesnel.
WORK DONE: Limestone shipped, 31,084 tons.
REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 502.

TERRACE CALCIUM PRODUCTS LTD. QUARRY (No. 13, Fig. C)

LOCATION: Lat. 54° 30.7′ Long. 128° 28.3′ (103I/9W)
On Copper Mountain 4.5 miles east of Terrace, at 2,900 to 3,100 feet elevation.

ACCESS: By road, 10 miles from Terrace via the British Columbia Telephone Company road to the Thornhill Mountain microwave station.

OWNER: TERRACE CALCIUM PRODUCTS LTD., Box 207, Terrace.

WORK DONE: Two men worked intermittently to do 200 feet of trenching, 15,000 square feet of stripping, and 1,250 feet of percussion drilling. Four hundred tons of limestone was quarried and 100 tons was shipped. The conveyors and transfer to bins and pulverizer were improved.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 503.

MARL

CHEAM MARL PRODUCTS (No. 264, Fig. E)

LOCATION: Lat. 49° 11.5′ Long. 121° 45′ (92H/4W)
Cheam Lake near Popkum.

ACCESS: By road 1 mile north from Highway 1 at Popkum.

OWNER: CHEAM MARL PRODUCTS LIMITED, 13 Fletcher Street South, Box 113, Chilliwack.

DESCRIPTION: The material mined consists of a post-glacial deposit of marl that forms the bed of former Cheam Lake, drained several years ago. Marl and topsoil are excavated by two small draglines. The marl is spread on an asphalt drainage pad, and air dried for a year. It is then loaded into trucks by a third dragline and delivered to consumers.

WORK DONE: Marl produced, 21,150 tons; marl shipped, 22,622 tons.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 503.

PHOSPHATE

PH (No. 106, Fig. G)

LOCATION: Lat. 49° 27.5′ Long. 114° 40′ (82G/7E)
FORT STEELE M.D. At 3,500 feet elevation on Michel Creek, along the Flathead Valley road 4 miles southwest of Corbin.

CLAIMS: PH, totalling 9.

ACCESS: By road from Corbin, 4 miles.

OPERATOR: MEDESTO EXPLORATION LTD., 215A – 10th Street NW., Calgary 41, Alta.

DESCRIPTION: Nodular phosphate occurs in siliceous sedimentary rock at the base of the Fernie Group.

WORK DONE: Trenching, 2,000 feet on PH 8 and 10.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 399.

WW **(No. 159, Fig. G)**

LOCATION:	Lat. 49° 27.5′	Long. 114° 42′	(82G/7E)

FORT STEELE M.D. At approximately 5,500 feet elevation near Barnes Lake, 5 miles southwest of Corbin.

CLAIMS: WW, totalling 40.

ACCESS: By road from Corbin, 5 miles.

OPERATOR: WESTERN WARNER OILS LTD., 215A – 10th Street NW., Calgary 41, Alta.

DESCRIPTION: Outcropping rocks range from Mississippian to Jurassic in age and comprise a thick sequence of marine and terrestrial sedimentary rocks. Phosphate rock is sedimentary and lies at the base of the Fernie Group.

WORK DONE: Surface geological mapping, 1 inch equals 100 feet covering WW 101, 102, and 104; road construction, 1 mile on WW 46, 48, 50, 102, and 104; trenching, 20,400 feet on same claims as road construction; surface diamond drilling, two holes totalling 207 feet on WW 55 and 102.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 504.

PYROPHYLLITE

ASA **(No. 278, Fig. E)**

LOCATION:	Lat. 49° 29.6′	Long. 120° 37.5′	(92H/ 7E)

SIMILKAMEEN M.D. Approximately 2,000 feet east of Princeton-Coalmont highway, 3 miles from Coalmont.

CLAIMS: ASA 1 to 5.

ACCESS: By logging road from highway, 2,000 feet.

OWNER: DRESSER INDUSTRIES CANADA, LTD. (Canadian Refractories Division), 1685 Boundary Road, Vancouver 6.

WORK DONE: Stripping, 800 square feet on ASA 1; surface diamond drilling, five holes totalling 150 feet on ASA 1.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1959, p. 184 (Pyro).

SAND AND GRAVEL

Data on sand and gravel production are presented on the following pages. The abbreviations used in the table for the types of sand and gravel produced are as follows: AA = asphalt aggregate; SA = sized aggregate; WS = washed and sized aggregate; S = sand; RP = run-of-pit material; CA = crushed aggregate; AP = asphalt paving mix; RM = ready-mix concrete.

Sand and Gravel Pits

Location	Operator	Equipment	Men	Production
Fort St. John Highway District—				
(1) Pit along Highway 10 (Cassiar)	Department of Highways	Front-end loader	1	RP = 200 yd.
(2) Dry Creek pit	Department of Highways	Crusher, Caterpillar tractor	10	CA and AA = 30,000 tons
(3) Dease pit—Stewart-Cassiar Highway	Department of Highways	Crusher, Caterpillar tractor	10	CA and AA = 30,000 tons
(4) Cemetery pit—Stewart-Cassiar Highway	Department of Highways	Crusher, Caterpillar tractor	10	CA and AA = 40,000 tons
(5) Stikine River—South bank	Department of Highways	Front-end loader	5	RP = 50,000 yd.
(6) Clarke pit at Taylor	Department of Highways	Crusher, front-end loader, Caterpillar tractor	6	AA and CA = 40,000 tons
(7) Imperial pit, Clayhurst	Department of Highways and Texaco Exploration Canada Ltd.	Crusher, front-end loader, Caterpillar tractor	12	AA and CA = 40,000 tons RP = 39,000 tons
(8) Inga Lake pit, Mile 95, Alaska Highway	Department of Highways, Amoco Canada Petroleum Company, and Pacific Petroleums Ltd.	Front-end loader, Caterpillar tractor	22	RP = 24,500 yd.
(9) Callison pit, Rose Prairie	Department of Highways	Crusher, front-end loader, Caterpillar tractor	10	CA = 50,000 tons
(10) Thomas pit, Mile 91, Alaska Highway	Department of Highways	Crusher, front-end loader	22	CA = 8,000 yd. RP = 3,000 yd.
(11) D.L. 1090, near Hudson Hope	Department of Highways, District of Hudson Hope	Front-end loader	10	RP = 9,000 yd.
(12) Mile 295 pit, Alaska Highway	Department of Highways, Village of Fort Nelson, K. Strand and J.H. Hanson	Front-end loader, trucks	12	RP = 16,100 yd.
(13) Sandstone pit, Mile 22 on Beatton River Road	Department of Highways	Caterpillar dozer, front-end loader	20	RP = 8,100 yd.
Prince Rupert Highway District—				
(1) Alice Arm pit, Mile 2, Kitsault Road	Department of Highways	Front-end loader, truck	1	RP = 343 yd.
(2) Alice Arm pit, Mile 2, Kitsault Road	Department of Highways	Front-end loader, truck	1	RP = 1,078 yd.
(3) Stewart, Bear Lake pit, D.L. 713	Department of Highways	One front-end loader, three trucks	4	RP = 21,416 yd. S = 305 yd.
(4) Stewart, Bitter Creek pit, D.L. 1300	Department of Highways	One front-end loader, truck	2	RP = 2,211 yd.
(5) Stewart—Watson Lake Highway, Mile 3 pit	Department of Highways	One front-end loader, truck	2	RP = 1,545 yd.
(6) Stewart—Watson Lake Highway, Mile 4 pit	Department of Highways	One front-end loader, truck	3	Rock = 375 yd.
(7) Stewart—Watson Lake Highway, Mile 30 pit	Department of Highways	One front-end loader, five trucks	6	RP = 78,651 yd.
(8) Construction pit, D.L. 803, Queen Charlotte Islands	Department of Highways	One front-end loader, fifteen trucks	16	RP = 315,966 yd.
(9) Construction pit, D.L. 799, Queen Charlotte Islands	Department of Highways	One front-end loader, sixteen trucks	16	S = 155,755 yd.
(10) Ross pit, D.L. 1349, Queen Charlotte Islands	Department of Highways	One front-end loader, three trucks	4	RP = 3,190 yd.
(11) Mile 7 pit, D.L. 395 and 401, Queen Charlotte Islands	Department of Highways	One front-end loader, three trucks	4	S = 675 yd.
(12) Green River pit, Highway 16 East	Department of Highways	One front-end loader, three trucks	4	S = 524 yd.

Sand and Gravel Pits—Continued

Location	Operator	Equipment	Men	Production
Terrace Highway District—				
(1) Mile 1, Old Lakelse Road, pit 1	Department of Highways	One front-end loader, two 4-ton trucks, screening plant	5	S = 5,000 yd.
(2) Mile 2.6, Highway 16 East, pit 3	Department of Highways	One loader, two tractors, two 4-ton trucks, one crusher	7	CA = 20,000 yd.
(3) Mile 5, Highway 16 East, rock quarry	Department of Highways	One loader, one air-trac, one tractor, four tandem trucks	9	Rip-rap = 8,500 yd.
(4) Mile 17, Highway 16 East, stockpile	Coppersides Estate and Parks Branch	One loader, one tractor, five tandem trucks	7	CA = 1,500 yd.
(5) Mile 9, Highway 25, pit 7	Department of Highways and L.G. Scott	Two loaders, two tractors, three 4-ton trucks, seven tandem trucks, one portable crusher	20	CA = 14,000 yd. RP = 15,000 yd.
(6) Mile 34, Highway 25, pit 33	Department of Highways	One crusher, two tractors, two 4-ton trucks, one loader	7	CA = 20,000 yd.
(7) Mile 0, Beam Station Road, pit 10	Department of Highways	One loader, three 4-ton trucks	5	RP = 1,500 yd
(8) Mile 6, Beam Station Road, pit 23	Department of Highways	One loader, three 4-ton trucks	5	RP = 1,500 yd.
(9) Mile 18, Kalum Lake Road, pit 34	Department of Highways	One loader, three 4-ton trucks	5	RP = 1,500 yd.
(10) Mile 2, Kalum Lake Road, pit 28	Department of Highways and King Trucking	One loader, one tractor, four tandem trucks	6	RP = 52,000 yd.
(11) Mile 13, Highway 16 West, Shames River pit	Department of Highways	One loader, one tractor, seven tandem trucks	12	RP = 68,000 yd.
(12) Mile 22, Highway 16 West, Exstew River pit	Department of Highways	One loader, one tractor, seven tandem trucks	10	RP = 28,000 yd.
(13) Mile 24, Highway 16 West, Andesite Creek pit	Department of Highways	One loader, one tractor, seven tandem trucks	10	RP = 16,000 yd.
(14) Mile 32, Highway 16 West	Department of Highways	One loader, one tractor, seven tandem trucks	12	RP = 102,000 yd.
(15) Mile 42, Highway 16 West, rock quarry	Department of Highways	One loader, two tractors, five tandem trucks	10	Rip-rap = 48,000 yd.
(16) Mile 57, Highway 16 West, rock quarry	Department of Highways	One loader, two tractors, five tandem trucks	10	Rip-rap = 4,000 yd.
Sandhill—Kitimat	Ocean Cement Limited	One 5-yard Sauerman scraper and hoist, one H90E loader, one 470 M.F. loader, one D-7 Caterpillar tractor	5	S, SA, and RP
Sandhill—Kitimat	L.G. Scott and Sons Construction Ltd.	One E-1 Jay crusher, one 950 front-end loader, D-8 Caterpillar tractor	8	CA and RP
Little, Haugland, and Kerr pit (Terrace)	L.G. Scott and Sons Construction Ltd.	One E-1 Jay crusher, one 950 front-end loader	9	CA and RP
Porcher Island	Universal Minerals Ltd.	One portable crusher, one 5-yard loader, one D-8 Caterpillar tractor, two 4-ton trucks	5	CA

Pearse Island, D.L. 791	Rupert Cement Products (1965) Ltd.	Tug, derrick, scow	2	WA
Hastings Arm			3	WA
Secret Cove			3	WA
Metlakatla Bar	Armour Salvage (1949) Ltd. and Rivtow Straights Limited	Tug, derrick, scow	3	RP
McNichol Creek			3	RP
Skeena River			3	S
Silver Creek			3	RP
Coquitlam Municipality—				
(1) West end of Westwood Road	Corporation of the District of Coquitlam	Front-end loader, portable crushing, screening	1	RP, SA = 16, 600 yd.
(2) Pipeline Road, 3.5 miles north of Lougheed Highway	Jack Cewe Ltd., Box 1100, Coquitlam	Front-end loader, crushing, screening, paving plant	6	RP, SA, and AP
(3) Pipeline Road, 3 miles north of Lougheed Highway	S & S Sand & Gravel Limited, RR No. 1, Port Coquitlam	Front-end loader, crushing, screening, washing	2	RP and SA
(4) Pipeline Road, 3 miles north of Lougheed Highway	Columbia Bitulithic Limited, Box 4225, Station D, Vancouver 9	Front-end loader, crushing, screening	-	RP, SA, and AP
(5) Pipeline Road, 3 miles north of Lougheed Highway	Allen Contracting Ltd., RR No. 1, 1520 Pipeline Road, Port Coquitlam	Front-end loader, trucks, crushing, screening	5	RP and SA
(6) Pipeline Road, 1.5 miles north of Lougheed Highway	Allard Concrete Construction Co., 1930 Pitt-River Road, New Westminster	Front-end loader, crushing, screening	3	RP and SA
(7) Pipeline Road, 1 mile north of Lougheed Highway	Canada Cement Lafarge Ltd., 1061 Main Street, Vancouver	Front-end loaders, crushing, washing, screening, readymix	8	SA, WS, and RM
(8) Pipeline Road, 4 miles north of Lougheed Highway	Allard Concrete Construction Co., 1930 Pitt River Road, New Westminster	Shovel, trucks	2*	RP
(9) Fraser River at Mary Hill, 2 miles south of Port Coquitlam	Construction Aggregates Ltd., 231 West Esplanade, North Vancouver	Shovels, etc., 500-ton-per-hour processing plant, barge-loading facilities	65	WS and CA
Maple Ridge Municipality—				
(1) 33rd Road, 1 mile south of Silver Valley	S. Berto, RR No. 2, Maple Ridge	Front-end loader, trucks	1*	RP = 3,497 yd.
(2) Grant Hill, 1 mile east of Albion and also adjoining Kirkpatrick pit	Corporation of the District of Maple Ridge	Front-end loader, crushing	–	RP and SA
(3) Grant Hill, .75 mile north of municipal pit	Williamson Blacktop and Landscaping Ltd., Haney	Front-end loader, crushing, screening	–	RP and SA
(4) Grant Hill, .5 mile north of municipal pit	Allard Concrete Construction Co., 1930 Pitt River Road, New Westminster	Front-end loader, crushing, washing, screening	2	WS
(5) Grant Hill, .5 mile north of municipal pit	McIntosh Sand and Gravel Limited, 10412 Industrial Avenue, Whonock	Front-end loaders, crushing, screening, washing	4	RP, WS, and SA
(6) Lougheed Highway south of Grant Hill	Walske Ready Mix Ltd., 23616 River Road, Haney	Shovel, front-end loader, crushing, washing, screening, readymix	10	WS and RM
(7) Albion	Columbia Bitulithic Limited, Box 4225, Station D, Vancouver 9	Front-end loader, crushing, screening	–	RP and SA
(8) Alouette River, east end of 27th Street	Kirkpatrick Sand and Gravel Ltd., 22367 McIntosh Street, Haney	Front-end loader	2*	RP

* Part time.

Sand and Gravel Pits—Continued

Location	Operator	Equipment	Men	Production
Maple Ridge Municipality—*Continued*				
(9) One mile north of Websters Corners, .5 mile east	Kirkpatrick Sand and Gravel Ltd., 22367 McIntosh Street, Haney	Shovel, washing, screening	2*	RP and WS
(10) Maple Ridge, east of 284th Street	Douglas Lesser, 22586 - 129th Avenue, Haney	Front-end loader	1*	RP
(11) Maple Ridge, east of 284th Street	C. Cozens, Maple Ridge		–	RP
(12) Lougheed Highway, 1 mile east of Whonock	W.A. George, Whonock	Front-end loader, truck	1*	RP – 1,032 yd.
(13)	Various operators, but owned by L.J. Donatelli, 29679 Lougheed Highway, RR No. 2, Mission	Front-end loaders, trucks	4*	RP
Mission Municipality–				
(1) 2.3 miles south of Steelhead, Dewdney Trunk Road	Cannon Contracting Ltd. Box 178, Mission	Front-end loader, crushing, screening	2*	RP and SA
(2) 2.2 miles south of Steelhead, Dewdney Trunk Road	M. Catherwood, RR No. 1, Mission		1*	RP
(3) 1 mile east of Stave Falls powerhouse	Corporation of the District of Mission		–	S
(4) 3 miles east of Stave Falls powerhouse	Corporation of the District of Mission		–	RP
(5) 2 miles east of Ruskin powerhouse	Corporation of the District of Mission	Front-end loader	2	RP and SA
(6) Mission	Department of Highways, Chilliwack	Front-end loader, screening	–	RP and SA
Kent Municipality–				
(1) West of Cemetery Road, south of Mount Agassiz	Corporation of the District of Kent	Shovel	2	RP
(2) McCallum Road, 1.5 miles west of Harrison Hot Springs Road	Danielson Contracting Ltd., McCallum Road, RR No. 1, Agassiz	Front-end loader	2*	RP
(3) McCallum Road	Department of Highways, Chilliwack	Front-end, screening	1	RP and SA – 5,400 yd.
(4) Fraser River bar, directly south of Agassiz	Morrow's Trucking & Reddi-Mix Ltd., 7506 Morrow Road, Agassiz	Front-end loader, trucks, screening	3	RP, SA, and RM – 8,000 yd.
(5) 1 mile north of Agassiz	Department of Highways	Front-end loader, trucks	2	RP
(6) .5 mile south of Rosedale—Agassiz Bridge	Department of Highways	Front-end loader, trucks	2	RP
(7) .5 mile west of Hunter Creek	Department of Highways	Front-end loader, trucks	2	RP
Chilliwack Municipality–				
(1) Fraser River bars, etc.	Chilliwack Gravel Sales Ltd.	Bucket-line dredge, front-end loader	2	RP and WS
(2) Arnold Road—bank of Fraser River	P. Heppner & Son Trucking, 7113 Sumas Prairie Road, Sardis	Front-end loader	2*	RP
Hope—8 miles north of Hope, Fraser River bars	Channel-Bar Mining Co. Ltd.	Front-end loader, trucks	–	RP and WS
Sumas Municipality—at foot and east of Taggart Peak	Various operators, but owned by H. Quadding, RR No. 1, Yarrow	Front-end loader, screening	3*	RP and SA – 69,712 yd.

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* Part time.

Matsqui Municipality—				
(1) 1 mile east of Abbotsford	Blackham's Construction Ltd., Box 39, Abbotsford	Front-end loaders, screening, washing, crushing	4	RP, SA, and WS = 125,881 yd.
(2) Tretheway Road, .75 mile north of Clearbrook	Department of Highways, Chilliwack	Front-end loader, screening	4	RP and SA = 12,100 yd.
(3) Clearbrook Road, .5 mile north of border	Abbotsford Gravel Sales Ltd., Box 8, Abbotsford	Scraper, front-end loader, screening, washing, ready-mix plant of Totem Trucking Ltd.	3	WS, RP, and RM = 43,205 yd.
(4) 12th Avenue, .75 mile west of Clearbrook Road	Valley Rite-mix Ltd., Box 430, Clearbrook	Scraper, front-end loader, screening, washing, crushing, ready-mix plant	4	RP, SA, WS, and RM
(5) Corner Lefeuvre Road and 8th Avenue—Caplette pit	Ernie's Trucking Ltd., Box 365, Aldergrove	Front-end loader, screening	1	RP and SA
(6) LeFeuvre Road	Corporation of the District of Matsqui	Front-end loader, screening	-	RP and SA = 53,908 yd.
Langley Municipality—				
(1) Kinch Road at 36th Avenue and Jackman Road	Corporation of the Township of Langley	Front-end loader, crushing, screening	4	RP and SA = 58,933 yd.
(2) North of the northeast corner of Jackman Road and 8th Avenue	Aldergrove Cement Tile Products, S. Omelaniec, manager	Front-end loader, screening	1*	RP, WS, and topsoil = 1,862 yd.
(3) .75 mile north of corner of Jackman Road and 8th Avenue	Aldergrove Gravel Co., RR No. 7, Langley	Front-end loader	2*	RP
(4) Dogwood Avenue, off Brown Road	Kitaul Bros. Gravel Sales Ltd., 24308 Fraser Highway, RR No. 3, Langley	Front-end loader	1	RP, Sand = 45,000 yd.
(5) Glen Valley Road at 252nd Street	Fort Langley Aggregates, Box 268, Langley	Dragline, front-end loader, crushing, screening, washing	6	RP, WS, and SA
(6) Glen Valley Road at 262nd Street	Aldergrove Gravel Co., RR No. 7, Langley	Front-end loader	2*	RP
(7) 2883 Lambert Road (Highland pit)	Construction Aggregates Ltd., 231 West Esplanade, North Vancouver	Dragline, front-end loader, crushing, screening, washing	8	RP, WS, and SA
(8) 32nd Avenue at Kinch Road	Oscar Rees Gravel Sales Ltd., Box 847, Langley	Dragline, front-end loader, crushing, screening	5	RP and SA = 232,475 yd.
(9) Boundary Road at Surrey boundary	Border Sand & Gravel Ltd., Boundary Avenue, RR No. 2, White Rock	Front-end loader, crushing, screening, washing	3	RP and WS = 37,380 yd.
Surrey Municipality—				
(1) Campbell River Road at Langley boundary	Shotcrete Equipment & Supply Ltd., Station "A", Surrey	Bulldozer, front-end loader, screening, washing	3	RP, SA, and WS
(2) 24th Avenue at Langley boundary	Corporation of the District of Surrey	Front-end loader	-	RP and SA
(3) 160th Street, south of 24th Avenue	Corporation of the District of Surrey	Front-end loader	-	RP
(4) 53rd Avenue at Delta boundary	Corporation of the District of Surrey	Front-end loader	-	RP
(5) 28th Avenue at 194th Street	Corporation of the District of Surrey	Front-end loader	-	RP
(6) 96th Avenue at Langley boundary	Corporation of the District of Surrey	Front-end loader	-	RP and SA
Delta Municipality—				
(1) .5 mile west of Scott Road at 68th Street	Standard General Construction (International) Limited, 6631 - 120th Street, North Surrey	Front-end loaders	3	RP = 298,000 yd.

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* Part time.

Location	Operator	Equipment	Man	Production
Delta Municipality—*Continued*				
(2) 10720 - 84th Avenue	M & W Sand and Gravel Ltd., 948 Beckwith Road, Richmond	Front-end loader	1*	RP
Annacis Island—				
(1) Fraser River at Annacis Island	Wilson Construction Co. Ltd., 4970 - 47A Avenue, Delta	Front-end loader	2	Sand = 270,000 yd.
Howe Sound—				
(1) Britannia Beach	Construction Aggregates Ltd., 231 West Esplanade, North Vancouver	Bulldozers, front-end loader, trucks, crushing, washing, screening	40	WS, RP, and SA
(2) Furry Creek	Construction Aggregates Ltd., 231 West Esplanade, North Vancouver	Bulldozers, front-end loaders, trucks, crushing, screening, washing	14	SA and WS
(3) Mamquam River	Coast Aggregates Ltd., Squamish	Front-end loader, trucks	3	RP and SA
(4) North of Cemetery Road, Gibsons	Universal Aggregate, Box 323, Gibsons	Front-end loader, crushing, screening	2	RP and SA
(5) Veterans Road, Gibsons	Gibsons Building Supplies Ltd., Gibsons	Front-end loader, crushing, screening, washing	3	RP, WS, and RM
(6) Porpoise Bay Road, Sechelt	L & H Swanson Ltd., Box 172, Sechelt	Front-end loader, screening, ready-mix	5	RP, SA, and RM = 11,590 yd.
(7) Porpoise Bay Road, Sechelt	Premier Sand & Gravel Company Limited, Box 183, Sechelt	Front-end loaders, crushing, screening, washing	5	RP, WS, and SA
Vancouver Island—				
(1) Campbell River—north of Buttle Lake Road at Elk Falls Road	Gord Noren Trucking Ltd., Box 345, Campbell River	Front-end loader	4	RP = 1,840 yd.
(2) Campbell River—south of Buttle Lake Road at Elk Falls Road	C & R Concrete and Gravel Supplies Ltd., Frank Bencze	Front-end loader, crushing, washing, screening	-	RP, SA, and WS
(3) Campbell River—south of Buttle Lake Road at Elk Falls Road	Antonelli Trucking Ltd., Box 189, Campbell River	Front-end loader	2*	RP
(4) Painter's Spit, Campbell River	Island Readimix Limited	High-line scraper, front-end loader, crushing, washing, screening, ready-mix	2	WS, SA, and RM = 18,311 yd.
(5) Courtenay—Muir Road	Vista Ventures Ltd., Box 156, Royston	Front-end loaders, trucks	2*	RP
(6) Cumberland Road near Courtenay	Island Readimix Limited	Bulldozer, mobile loader, crushing, screening	12	SA and RM = 55,036 yd.
(7) Comox	R.E. Longland Trucking Ltd.	Front-end loaders, trucks, screening	6	RP = 40,101 yd.
(8) Parksville, 2 miles east	Fouty Bros.	Front-end loader	1	RP and WS
(9) Parksville, 2 miles east	James Jenkins	Bulldozer, front-end loader	1	RP
(10) Port Alberni	Dolan's Limited Sand and Gravel	Front-end loader, ¾-yard shovel, crushing, washing, screening, trucks	17	RP, SA, and WS = 91,677 yd.
(11) Ucluelet—.5 mile north of Tofino—Ucluelet Junction on east side of Highway No. 4	Timberline Services, Box 464, Ucluelet (Pacific Ready-Mix)	Front-end loaders, trucks, dragline, screening plant	3*	RP and SA = 4,429 yd.
(12) 2 miles north of Ucluelet on Highway No. 4	Ucluelet Contracting Company Limited, Box 81, Ucluelet	....	-	....

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* Part time.

Vancouver Island—*Continued*				
(13) Nanaimo	Island Excavating Ltd.	Bulldozer, front-end loader	–	RP
(14) Nanoose Bay	Butler-Lafarge Ltd.	Front-end loader	–	RP
(15) Cassidy, .5 mile west of Island Highway, north of Nanaimo River	Hub City Paving and Construction Ltd., Box 427, Nanaimo	Front-end loader, crushing, washing, screening	3	RP, SA, and WS
(16) Cassidy—Nanaimo Lakes Road	Jack Milner Trucking, 1684 Chicadee Crescent, Nanaimo	Front-end loader, trucks, screening	2*	RP and SA
(17) Duncan—Cowichan Lake Road	Butler LaFarge Ltd., Canada Avenue, Duncan	Front-end loader, crushing, washing, screening, ready-mix	9	RP, WS, SA, and RM
(18) Duncan—Koksilah	Armour & Saunders Ltd., 2739 James Street, Duncan	Front-end loader, crushing, screening, washing	8	RP, WS, and SA = 56,401 yd.
(19) Cobble Hill	Gravel Hill Supplies Ltd., Cobble Hill	Front-end loader, washing, screening, ready-mix	6	RP, WS, SA, and RM
(20) Goldstream—Sooke Lake Road at Trans Canada Highway	Mattison and Patterson Ltd., 3421 Bonair Place, Victoria	Front-end loader, crushing, screening	1	RP and SA
(21) Goldstream—Sooke Lake Road .5 mile west of Trans Canada Highway	Hanson Bulldozing Ltd., 1580 Trans Canada Highway, Victoria	Front-end loader	2	RP
(22) Goldstream—Sooke Lake Road at Humpback Road	OK Trucking Co. Ltd., 760 Topaz Avenue, Victoria	Front-end loader	1*	RP
(23) Goldstream—Turner Meadows	Nixon Ltd., 400 Burnside Road East, Victoria	Front-end loader, screening	2	RP and SA = 59,500 yd.
(24) Keating Cross Road, Saanich	Butler Brothers Supplies Ltd., Box 4066, Station "A", Victoria	Shovel, front-end loader, crushing, washing, screening, ready-mix	10	RP, WS, SA, and RM
(25) Cordova Bay Road, Saanich	Trio Ready-Mix (1971) Ltd., 773 Cordova Bay Road, Victoria	Front-end loader, crushing, washing, screening, ready-mix	4	RP, WS, SA, and RM = 66,933 yd.
(26) Metchosin	Producers Sand & Gravel (1928) Company Limited, 900 Wharf Street, Victoria	Front-end loader, crushing, washing, screening	12	RP, WS, and SA = 350,620 yd.
(27) Langford	Columbia Ready Mix Ltd., 2949 Phipps Road, Victoria	Front-end loader, crushing, washing, screening, ready-mix	2	RP, WS, SA, and RM
(28) Sooke—Sooke Road east of Milnes Landing	Butler Brothers Supplies Ltd., Box 549, Sooke	Front-end loader, crushing, washing, screening, ready-mix	3*	RP, WS, SA, and RM
Jervis Inlet—				
(1) Treat Creek	Delta Rock Ltd., Egmont	Front-end loaders, crushing, screening	6	RP and SA
Lang Bay—				
(1) 1 mile north of Lang Bay	Burg & Johnson Ltd., 4728 Joyce Avenue, Powell River	Front-end loader, crushing, screening, washing	2	WS = 7,073 yd.
Powell River—				
(1) Off Allen Road, 3 miles northeast of Westview	P. Nassichuk, 7123 Alberni Street, Powell River	Front-end loader, screening	1*	RP, Sand = 4,481 yd.
(2) Yukon Avenue, Cranberry Lake	Parsons Tractor Service, Box 130, Powell River			RP
(3) Yukon Avenue, Cranberry Lake	John Sarnowski, RR No. 1, Powell River	Front-end loader, crushing, screening,	3	RP, WS, and SA

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* Part time

Sand and Gravel Pits—Continued

Location	Operator	Equipment	Men	Production
Powell River—*Continued*				
(4) Paradise Valley Road, Hammil Lake	Robert E. Mickle, 5416 Manson Avenue, Powell River			RP
Gulf Islands—				
(1) Rainbow Road, Saltspring Island	Gulf Coast Materials Ltd., Ganges	Front-end loader	1*	RP
Kamloops—Indian Reserve No. 1	Ocean Cement Northern Limited, Kamloops			Gravel
Kamloops—Indian Reserve No. 1	Metro Sand and Gravel Limited, 186 West Victoria Street, Kamloops			S and Gravel
Nelson—Anderson Creek	Premier Sand & Gravel Company Limited	Front-end loader, crushing, screening	4	RP, WS, and RM
Trail—Casino Road	McGauley Ready-Mix Concrete Company	Front-end loader, crushing, screening	4	RP, WS, and RM
Trail—Columbia River	Korpack Cement Products	Front-end loader, screening, crushing	5	CA, AA, and AP
Castlegar—Columbia River	McGauley Ready-Mix Concrete Company	Front-end loader, screening	3	RP, WS, and RM

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* Part time

SILICA

OLIVER SILICA QUARRY

LOCATION: Lat. 49° 11.7' Long. 119° 33.2' (82E/4E)
OSOYOOS M.D. One-quarter mile west of Highway 97, 1 mile north of Oliver.

CLAIM: GYPO (Lot 30985).

ACCESS: By road from Oliver.

OWNER: Cominco Ltd.

OPERATOR: PACIFIC SILICA LIMITED, 717 West Pender Street, Vancouver 1; field address, Box 39, Oliver.

WORK DONE: There was no production from the pit in 1971. Reclaim from the stockpiles was carried out continuously, employing three men. Shipments, 7,817 tons.

SHEEP CREEK CAMP (No. 122, Fig. G)

LOCATION: Lat. 49° 09' Long. 117° 09' (82F/3E)
Report on this area in metals section in 82F/3E.

SCUZZY CREEK (No. 185, Fig. E)

LOCATION: Lat. 49° 50' Long. 121° 35' (92H/13E)
NEW WESTMINSTER M.D. At 2,600 feet elevation on Scuzzy Creek, approximately 12 to 17 miles west of its confluence with Fraser River.

CLAIMS: MIDGE 1 to 24, NAN 1 to 8, LYN 1 to 5, APLO 1 and 2, MIN 1, HELEN, JAN, BOB, totalling 43 claims and fractions.

ACCESS: By gravel road from Boston Bar, 12 to 17 miles.

OWNER: INDUSMIN LIMITED, 7 King Street East, Toronto 1, Ont.

DESCRIPTION: The entire highland surrounding Scuzzy Creek consists of remarkably uniform coarse-grained quartz diorite.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet covering Min 1, Lyn 1, Midge 1-12, 15-20, and Midge 21-23 Fractions; trenching, test pits on Aplo 2 and Bob; percussion drilling, 10 holes totalling 162 feet on Helen, Bob, Aplo 1 and 2, Midge 10, and Min 1.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, pp. 512, 513.

BUSE LAKE QUARRY (No. 284, Fig. E)

LOCATION: Lat. 50° 37.3' Long. 120° 01.5' (92I/9E)
KAMLOOPS M.D. At the southeast corner of Buse Lake, 14 miles east-southeast of Kamloops.

CLAIMS: BUSE 1 and 2.

ACCESS: By road from the Canada Cement Lafarge Ltd. cement plant, 12 miles east of Kamloops on Highway 1.

OWNER: CANADA CEMENT LAFARGE LTD. (Pacific Region), 1051 Main Street, Vancouver 4; field address, Box 728, Kamloops.

WORK DONE: One percussion drill hole was drilled for sampling and 23,863 tons of siliceous volcanic rock was shipped to the Kamloops cement plant of Canada Cement Lafarge Ltd.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 513.

MARK, LAURA LEE (No. 117, Fig. E)

By J. W. McCammon

LOCATION: Lat. 50° 03.5′ Long. 127° 06.1′ (92L/3E)
ALBERNI M.D. Near the northwest corner of T.L. 9603 on the south shore of the swamp at the head of Fair Harbour.

CLAIMS: MARK, LAURA LEE, totalling 22 claims and fractions.

ACCESS: By private logging road northwest from Zeballos, 25 miles.

OWNER: MICA EXPLORATION CO. LTD., 510, 1055 West Hastings Street, Vancouver 1.

DESCRIPTION:

This company is attempting to develop a source of silica and refractory material. The deposit appears to consist of mineralization in an alteration zone along a fault in tuffaceous volcanic rocks. The material now present includes quartz and massive sericite with pyrite, magnetite, and minor dumortierite. It is exposed in a rock cut along the south side of a logging road. The road runs eastward along the edge of a swampy delta, about 100 feet south of and 15 to 20 feet above the high tide mark. South of the road the ground rises steeply to a ridge more than 2,000 feet high. In the immediate area of the showing rock exposures are scarce except in road cuts. The bush is thick.

The country rocks are dark blue-grey to black, fine-grained, well-bedded crystal tuffs. Thin sections show angular feldspar crystal fragments in a fine-grained indeterminate fragmental matrix containing much magnetite. The tuffs most likely belong to the upper part of the Upper Triassic-Jurassic Bonanza Subgroup. The average strike of the rocks is north 80 degrees west and the dip ranges from 40 to 60 degrees to the south. The tuffs are exposed intermittently from the edge of road southward up the slope.

In all of the visible exposures north of the base of the slope, that is, from the south edge of the road northward, the rocks have been highly altered, apparently along an east trending, steep fault zone. The visible exposures indicate that the alteration is zoned but not enough can be seen to allow accurate measurements of zone widths. From the unaltered tuff northward there is first an intensely silicified band ranging up to 6 feet wide; next, in some places, a band consisting of a mixture of fine-grained silica, sericite, and magnetite; and finally, an undetermined width of silicified and pyritized material. Few contacts are visible. In one spot the contact between the silicified band and the tuff is gradational over 6 inches and in two other places it is faulted. The contact between the silicified and sericitized zones is relatively sharp with an undulating trace where undisturbed, but it may also be faulted. In the one contact seen, the silica-sericite-magnetite band grades into pure sericite. No good exposure of the contact between the silica-sericite-magnetite and silica-pyrite zones was seen.

Rock from the silicified zone is pale, creamy white, often brown weathering, hard, and fine grained. A streaky foliation visible in some outcrops probably represents original bedding. In thin sections the rock is seen to consist of recrystallized quartz in grains with diameters of 0.01 to 0.12 millimetre occasionally reaching 0.20 millimetre. Sericite and pyrite are present in minor quantities.

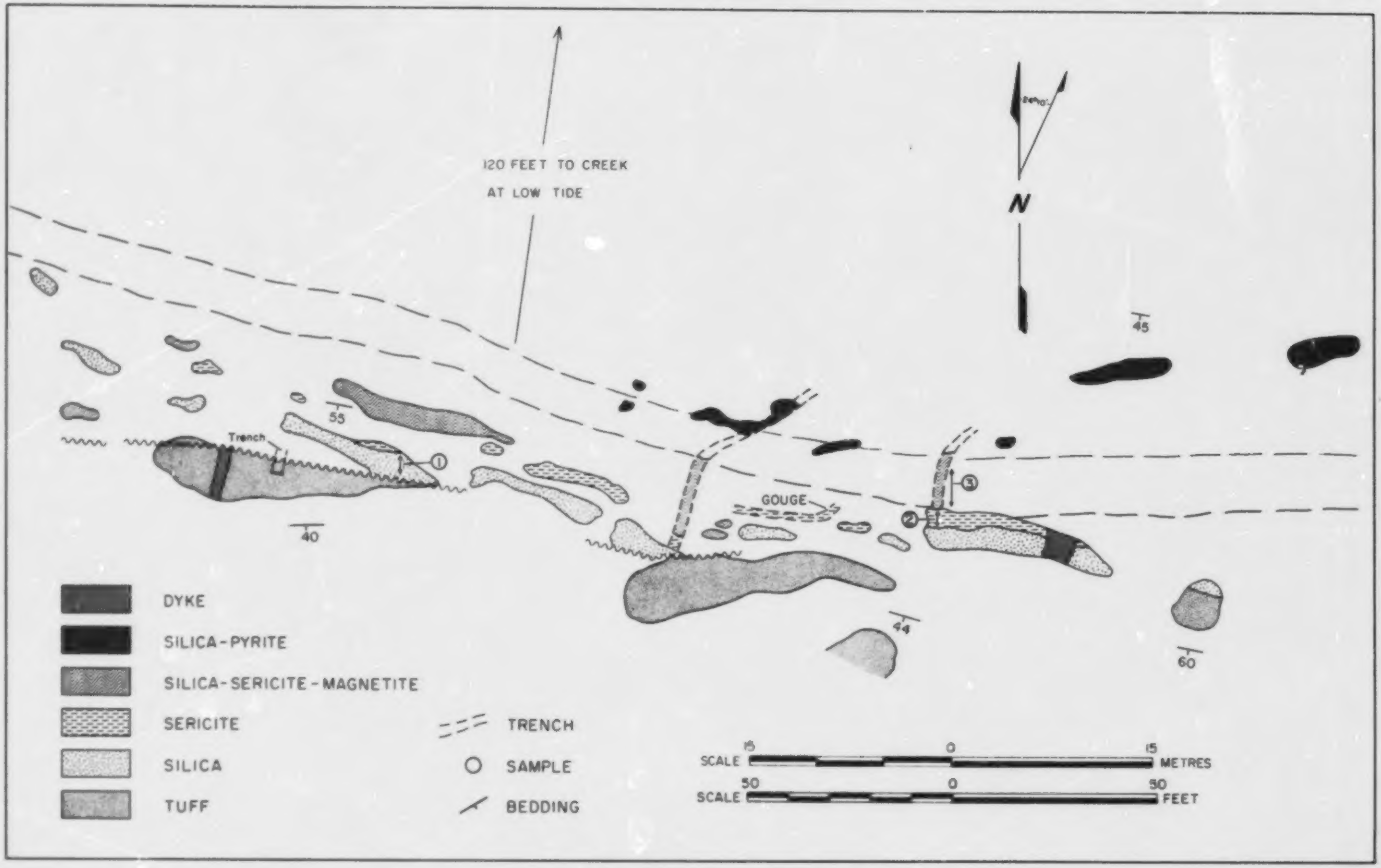
120 FEET TO CREEK
AT LOW TIDE
N
45
55
Trench
①
40
GOUGE
②
③
44
60
DYKE
SILICA-PYRITE
SILICA-SERICITE-MAGNETITE
SERICITE
SILICA
TUFF
TRENCH
SAMPLE
BEDDING
SCALE
15
0
15
METRES
SCALE
50
0
50
FEET

Figure 55. Mark, Laura Lee showings.

The sericitized zone contains dense, soft, very fine-grained, greenish white sericite. Scattered streaks and 2 to 3-inch-long lenses of dark blue dumortierite occur erratically in the sericite. Some iron staining due to altered pyrite or magnetite is present.

The rock in the silica-sericite-magnetite zone is fine grained and dark bluish to black with streaks and patches of light translucent green, dense sericite. It consists of an intimate mixture of fine-grained quartz, sericite, and magnetite.

The most northerly zone exposed consists of hard, fine-grained, blotchy blue-grey rock peppered and veined with pyrite. Fracture surfaces are rust stained. In thin section the rock is seen to consist chiefly of plagioclase fragments, quartz, sericite, and pyrite.

In parts of all of the altered zones the relict texture of the original tuffaceous rock is discernible.

Fine-grained, brown-weathering, grey, porphyritic andesite dykes were observed as shown on the accompanying map (Fig. 55).

Slickenside and gouge indicate that considerable faulting has taken place along the altered zone since the alteration occurred. In some places the development of white clayey gouge, high in kaolin content, has been extensive, particularly toward the west end of the excavation.

Three samples were collected for chemical analysis. Number 1 consisted of a channel sample across 7 feet where the silicified zone was best exposed. It contained: SiO_2 = 96.70, Al_2O_3 = 0.87, Fe = trace, CaO = not detected. Number 2 consisted of a channel sample across 6 feet of the best exposure of the sericitized zone. It contained: SiO_2 = 54.71, Al_2O_3 = 34.62, K_2O = 3.10, Na_2O = 0.34, Fe (total) = 0.39, H_2O (+105° C) = 5.72, SO_3 = 0.27. Number 3 was a channel sample cut along 11 feet in a shallow trench across the silica-sericite-magnetite zone. It contained: SiO_2 = 64.52, Al_2O_3 = 22.11, K_2O = 1.21, Na_2O = 0.22, Fe (total) = 4.50, H_2O (+105° C) = 4.20, SO_3 = 1.54.

This same property contains interesting copper showings one-half to 1 mile east of the deposit of quartz and sericite.

WORK DONE: Trenching was done on the main showing for 300 feet along strike by bulldozer and two shallow cross-trenches were dug by hand. Mapping, geophysical surveys, and some diamond drilling have been done at the copper mineralization.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1970, p. 284.

BETTY, HELENE, RAINBOW (No. 82, Fig. E)

LOCATION: Lat. 50° 36.4' Long. 127° 40.9' (92L/12E)
NANAIMO M.D. From sea level to 450 feet elevation at Apple Bay on the north shore of Holberg Inlet, 4.5 miles west of Coal Harbour village.

CLAIMS: BETTY, HELENE, RAINBOW, SI 1 to 3.

ACCESS: By water from Coal Harbour, 4.5 miles.

OWNER: CANADA CEMENT LAFARGE LTD. (Pacific Region), 1051 Main Street, Vancouver 4.

DESCRIPTION: The deposit consists of silicified volcanic rocks.

WORK DONE: Surface geological mapping, 1 inch equals 200 feet covering all claims.

REFERENCE: *Minister of Mines, B.C.*, Ann. Rept., 1968, p. 330 (Apple).

5

COAL

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GENERAL REVIEW OF COAL MINING AND EXPLORATION

By A.R.C. James

Final figures indicate that the total amount of coal mined (net production) in 1971 was 4,637,012 short tons. This is a 33 per cent increase over the 1970 production and is the largest amount of coal ever produced in any year in British Columbia. Of the net production 3,912,154 tons was from open-pit mining and 724,858 tons was from underground mines. All came from the mines of Kaiser Resources Ltd. at Michel and Sparwood.

Production problems at the operations of Kaiser Resources Ltd., which became evident in 1970, have continued to result in shipments of coal to Japan being below projected tonnages. In 1971 extensive modifications and additions to the Elkview coal-preparation plant were completed in order to treat the raw coal more effectively. Unfortunately a serious fire in the drier section in December resulted in a 3-week closure of the plant. During the year, in co-operation with engineers from Mitsubishi Metal Mining Co. Ltd., a revised mining plan was drawn up to cover the period to 1985. This now calls for the delivery of 4.4 million long tons of clean coal per year.

Work continued throughout the year in preparing the property of Fording Coal Limited for production. This company has a contract to supply 3 million long tons per year of metallurgical coking coal to Japanese consumers, the first shipment being due in April 1972. Areas have been prepared for open-pit mining in the Clode Creek and Greenhills sections of the property, a 750-short-ton-per-hour coal-preparation plant has been completed, a branch line to the mine has been constructed by C.P. Rail, and a new townsite is being developed at Elkford in the Elk Valley.

In addition to production and exploration in the East Kootenay coalfield, considerable exploration and development has been carried out in the northeastern coalfield extending along the eastern foothills of the Rocky Mountains from the Alberta border south of Narraway River for over 200 miles to north of Halfway River. The coal-bearing formations in this area are the Lower Cretaceous Gething and Commotion (Gates Member). Development work is most advanced at the Sukunka property of Brameda Resources Ltd., where an indicated reserve of over 65 million tons of high-grade coking coal has been established by drilling in the Chamberlain seam. Denison Mines Limited, who have been exploring in the Quintette, Belcourt, and Saxon Creek areas, also report encouraging results. Several other companies explored coal licences both north and south of Peace River.

In 1971, 840 new coal licences were issued and 192 old licences were forfeited. At the end of the year 2,090 coal licences were in good standing. These covered a total area of 1,188,749 acres.

REPORTS ON COAL MINES

EAST KOOTENAY INSPECTION DISTRICT

By R. W. Lewis

The total production of coal from the East Kootenay District during 1971 was 4,637,012 tons, an increase of more than a million tons over the previous year. The entire production came from the Kaiser Resources Ltd. operation near Sparwood. There was no coal production from the British Columbia side of the Tent Mountain open-pit operation in 1971. During the year Fording Coal Limited continued with the construction of mine plant facilities, the assembly of pit equipment, and preproduction work in two pit areas. The preproduction work involved the stripping of about 3,600 cubic yards of overburden to uncover about 250,000 short tons of raw coal, which was stockpiled ready for processing. Three other companies were engaged in coal exploration in the East Kootenay District during 1971, but compared with immediate previous years the work was considerably less extensive.

During the year Kaiser Resources Ltd. continued to increase production from the open-pit operations in the vicinity of Harmer Ridge. Less coal and coke were produced at the company's Michel Colliery than in previous years. The old coal-preparation plant at Michel was phased out as a coal-cleaning unit when the facility for receiving coal from the underground mines at the Elkview plant was completed. In addition, modificatons were made to the Elkview plant that greatly increased the capacity for cleaning fines.

Coal production at the Michel Colliery was from two underground mines and one open pit, all mining in the Balmer seam. A team of hydraulic mining experts from the Japanese Mitsui Mining Company assisted early in the year at the underground hydraulic mine. A full description of the underground and surface operations is included later in this report.

There were three fatal accidents in the district during the year, all of which occurred on the surface. Two were associated with construction work, one at the Kaiser Resources Ltd. construction site and one at the Fording Coal Limited site. The other involved a mine worker at the Kaiser Resources Ltd. Elkview coal-preparation plant. There were no fatal accidents at the underground or surface operations of the Michel Colliery. These accidents together with dangerous and unusual occurrences are described fully in the Annual Report of the Minister of Mines and Petroleum Resources.

The East Kootenay Mine Safety Association held its 50th annual mine-rescue and first-aid competitions at Fernie on June 5th, with good attendance. Four teams entered the mine-rescue competition, two from Kimberley, one from Michel, and one from Fernie. The Department of Mines and Petroleum Resources trophy was won by the Fernie team captained by Jack Peters. The senior men's first-aid competition was won by the Kimberley Operations team of Cominco Ltd., coached by R. L. Ralph. The winning teams from the district later competed at the Provincial competitions held at Vancouver and Kelowna in June.

SAGE CREEK COAL LIMITED

LOCATION: Lat. 49° 06′ Long. 114° 34′ (82G/2E)
In the lower Flathead River Valley.

LICENCES: Nos. 374 to 407, 409 to 411, 986 to 989, 1880 to 1886.

ACCESS: Off Highway 3 at Morrissey for approximately 44 miles southeast along forest access road.

OWNER: Sage Creek Coal Limited.

OPERATOR: RIO TINTO CANADIAN EXPLORATION LIMITED, 120 Adelaide Street West, Toronto 1, Ont.

DESCRIPTION: The coal is in the Kootenay Formation which owes its position to downfaulting between two resistant blocks that form the Clarke Range to the east and the MacDonald Range to the west. Locally the Kootenay Formation occupies the east flank of a northwest trending anticline.

WORK DONE: Three holes totalling 2,600 feet diamond drilled; 17 holes totalling 10,264 feet rotary drilled; coal samples from drilling analysed; 5 miles of road constructed; 12,000 feet trenched; geology mapped on licences 374-376, 392, 393, 396, scale 1 inch equals 400 feet; surface workings surveyed.

KAISER RESOURCES LTD.

LOCATION: Lat. 49° 44′ Long. 114° 48′ (82G/10, 15)
The underground mining operations of Kaiser Resources Ltd. are in the Michel Valley approximately 1 mile east of Sparwood, and the open-pit operations are in the vicinity of Harmer Ridge about 4 miles northeast of Sparwood.

LICENCES: Private coal lands.

ACCESS: Off Highway 3 at Sparwood.

OWNER: KAISER RESOURCES LTD., Box 940, Fernie; H. M. Conger, vice president and general manager; L. H. Hunter, vice president, operations; J. E. Korski, general superintendent of mining; A. W. Grimley, mine manager, underground mining; L. M. Dwarkin, chief mining engineer; J. B. Murphy, chief geologist.

WORK DONE:

The open-pit operation on Harmer Ridge and the Elk Valley preparation plant continued to operate throughout the year. Michel Colliery operated at a producuction level slightly less than in former years. The hydraulic method of coal mining which was commenced in late 1970 continued successfully during 1971.

Throughout the year the company continued to implement its reclamation programme. A small tree farm and a large heated greenhouse were used to nurture conifers, deciduous trees, and shrubs, all native to the area. During the year 16.5 miles of roadside and 25 acres of flat land were hydroseeded, and the Michel townsite, hydraulic minesite, and portions of older open-pit operations were reclaimed.

HARMER RIDGE OPEN PITS AND COAL-PREPARATION PLANT: In the general area known as Harmer Ridge, the company mined in the Harmer No. 1, Camp 8, Harmer No. 2, Dry Creek, Harmer Knob, and Adit 29 open pits.

The Page dragline was in service in the Harmer No. 1 open pit, which was worked by a combination of dragline, shovel, and truck, whereas all the other open pits were worked by shovel and truck only.

A total of 13,000 tons of explosives was used to prepare some 32 million cubic yards of overburden. An explosive mixing plant owned and operated by Dupont of Canada operates on the property under contract to Kaiser Resources Ltd. The clearing of the overburden uncovered approximately 4.7 million tons of run-of-mine coal that was loaded and then conveyed through the mountain to the Elkview coal-preparation plant near Sparwood.

The following list of additional equipment was assembled and put into operation in the open pits: Six M200 Unit-Rig 200-ton trucks, eight M100 Unit-Rig 100-ton trucks, one P&H 2100 15-yard electric shovel, and one Model L-700 Letourneau front-end loader.

Raw coal from the open pits was delivered by trucks to the coal breaker station, where it was reduced to a 4 by 0-inch size range. The coal was then conveyed through a mile long tunnel to four raw coal silos having a total capacity of 8,000 tons. The coal was next conveyed into the coal-preparation plant where it was separated for treatment into four different size ranges: 4 by 3/8 inch was treated in a heavy medium vessel; 3/8 inch by 28 mesh, in heavy media cyclones; 28 mesh by 100 mesh, in hydrocyclones; and minus 100 mesh, by froth flotation.

The clean coal in the size range 3/8 by 0 inch was dried in a fluid-bed thermal coal drier and added to the clean coarse coal for storage in the four clean coal silos. Unit trains were loaded as they were hauled through the loading station at the base of the silos.

Certain modifications were made on the coal-preparation plant by Kaiser Engineering Ltd. These entailed the removal of the dedusting plant and the provision of additional hydrocyclones, flotation, filtration, and thickening plant, to increase the capacity for treatment of fine coal. In addition to this work in the washery, modifications were also made to the thermal coal-drying plant to deal with the extra make of coal in the 3/8 inch by 0 range.

Coarse refuse from the plant was hauled by scrapers to the spoil area in the valley bottom where it was layered and compacted. The minus 28 mesh tailings were fed into tailings impoundments from where the water, once clarified, was returned to the plant for reuse.

MICHEL COLLIERY: This colliery, in operation since 1899, is at Michel, 24 miles northeast of Fernie. Production in 1971 was from two underground mines and one small open pit. The coal-preparation plant and the by-products plant are on the colliery site at Michel. The mines are on both sides of the Michel Valley at about 4,000 feet elevation, having been opened mainly from the coal seam outcrops. For the past 13 years the underground mines have been worked by mechanized room-and-pillar methods, however, in the latter part of 1970 a start was made on hydraulic mining in one of the mines.

Underground equipment was operated mainly by electricity, and all the equipment was of the flameproof type approved for use in coal mines. Underground transportation of coal was by shuttlecars, belt conveyors, and hydraulic flumes. Underground transportation of supplies and materials was by means of rubber-tired vehicles operated by either diesel or storage battery units.

At Michel Colliery and the exploration sites, 2,900 pounds of Monobel and 1,900 pounds of CXL-ite explosive was used. In conjunction with this, 5,000 electric detonators were used, with no reported misfired shots. A total of 2,836 tons of limestone rock dust was spread in the underground mines to minimize the coal-dust exploration hazard. This total tonnage was less than the previous year, but the ratio of weight of rock dust to tonnage of coal mined was higher than in the previous year. Regular dust samples were taken in the mines at monthly intervals in accordance with the requirements of the *Coal Mines Regulation Act*. These samples were analysed and the results recorded.

Monthly examinations of workings at the mine were made by the miners' inspection committee, in accordance with Section 21 (1 to 5) of the *Coal Mines Regulation Act*, and regular safety committee meetings were held each month in the mine office. Reports, kept at the mine office in compliance with the *Coal Mines Regulation Act*, were checked periodically and found to be in order.

The Fernie mine-rescue team captained by Jack Peters, representing Kaiser Resources Ltd. and comprised of workmen employed at the Michel Colliery, was successful at the District competition and went on to win the Provincial competition at Kelowna. The same team later represented the Province at the Canadian mine-rescue competition at Edmonton.

At the end of the year, 436 men were employed at Michel Colliery, 210 on the surface and 226 underground. Four overmen and 21 firebosses were employed to ensure that safety inspections and work supervision were conducted in accordance with the requirements of the *Coal Mines Regulation Act*. A description of the mining operations follows.

UNDERGROUND MINES

BALMER NORTH MINE: This mine, in the No. 10 seam, is on the north side of the Michel Valley. It is entered by two rock tunnels, each 1,150 feet long, which were driven in February 1966. The mine portals are at an elevation of 3,850 feet, 1 mile west of the old coal-preparation plant at Michel and can be reached by private access road. The coal seam is about 50 feet thick, dips at an angle of about 15 degrees to 20 degrees to the southwest, and is overlain by a fairly strong shale roof. The coal was mined by continuous-miner machines, loaded into shuttlecars and transported from the working face to the surface of the mine on trunk conveyor belt systems, and then trucked by contractors to the coal-preparation plant.

The mine had a daily average production of about 1,141 tons of saleable coal during 1971. Three continuous-miner machines producer coal from different sections of the mine, each section being ventilated by separate splits of mine air. Most of the production was obtained by driving rooms and entries immediately underneath the hangingwall of the seam along the direction of strike; the rest was obtained from partial pillar extraction, by widening the entries, and by further shrinking into the thick seam of coal.

Ventilation of the mine was provided by a Joy 400-horsepower mine fan operated at a water gauge of 6 inches, installed on and exhausting from the top of a vertical 16-foot-diameter air shaft. The mine fan provided about 300,000 cubic feet of air per minute. The main return airway, at the bottom of the shaft, contained on average about 0.6 per cent methane during normal working conditions. Cold weather problems during the winter months were overcome by the use of two Flamemaster mine air-heating units in conjunction with two Joy 100-horsepower mine fans at the portals of the rock tunnels.

Ventilation of the working faces was mostly by auxiliary fans and flexible ducting, but sometimes by a combination of fan and ducting with additional line brattice. Each working face was equipped with a constant running methanometer, preset to give the continuous-miner operator warning when the methane content of the mine air at the working face reached a level of 1 per cent.

The standard of limestone rock-dust application in the underground workings of the mine was good, resulting from the regular use of several rock-dust sprinkling machines. In accordance with the provisions of Rule 90 of the *Coal Mines Regulation Act,* 21 sets of water barriers were used at various locations in the mine to stop the propagation of any underground methane-air or coal-dust explosion.

The results of airborne dust surveys conducted by the Environmental Control Branch of the Department of Mines and Petroleum Resources still indicated that there is much progress to be made in the field of airborne dust control. A locally designed water spray which incorporates an atomization principle was fitted to the Joy continuous miner and was instrumental in reducing airborne dust concentrations. The company conducted a number of airborne dust surveys in the Balmer North mine using the gravimetric sampler and the results of the surveys were recorded. At the end of the year the company ordered several personal airborne dust-sampling instruments.

The Balmer North mine was regularly inspected and general conditions were found on the whole to be satisfactory.

BALMER HYDRAULIC MINE: This mine, operating in the No. 10 seam, is on the south side of the Michel Valley approximately 1 mile west of the old coal-preparation plant at Michel. The mine was opened in 1969, with two main entries driven from the outcrop of the seam on the mountainside. The development of this mine was primarily to explore the possibilities of working the seam by hydraulic methods. Hydraulic mining was commenced in November 1970 and continued throughout 1971. The team of Japanese engineers and machine operators from the Mitsui Mining Company of Japan, who arrived at the end of 1970, were retained by Kaiser Resources Ltd. until the late spring of 1971. A description of the mode of operation is contained in the 1969 and 1970 editions of Geology, Exploration, and Mining in British Columbia. The mine is still considered to be a test mine, but the results obtained, an average daily production of 2,886 tons of saleable coal, continued to be encouraging.

Ventilation of the mine is provided by a 100-horsepower electrically driven axivane mine fan, which delivers approximately 150,000 cubic feet per minute of mine air at a water gauge of 3 inches. Through ventilation was provided in all the hydraulic sub-levels, with fresh air passing over the operating teams, through the worked out areas, and thence to the main bleeder airways and to the surface. All development sub-levels and roadways were provided with axiliary ventilation by a combination of axiliary fans and flexible ducting.

The development of the main underground roadways and the hydraulic sub-levels was done by continuous-miner machines, and the coal was transported by shuttlecar from the coal face to either a trunk conveyor belt system or to the main coal-transporting flumes. The coal produced by the hydraulic monitors was transported in semicircular flumes out of the mine and to the dewatering plant on the surface. During 1971 the surface plant was expanded by the addition of another vacuum filter and a heat exchanger which would prevent the thickener from freezing during the cold months. Coal produced at the Hydraulic mine was trucked from the mine and thickener plant to the new Elkview coal-preparation plant by a contractor.

The underground workings remained free of methane gas and at no time could methane be detected on either the flame safety lamp or the methanometer. The mine was inspected regularly and on the whole general conditions were found to be satisfactory.

MICHEL COLLIERY OPEN-PIT OPERATIONS

These open pits are quite separate from the operations in the vicinity of the Harmer Ridge, with the mined coal in the past years having been treated at the Michel plant. Compared with previous years considerably less coal was mined from these smaller operations, the only open pit worked in 1971 being the No. 10 seam, 7 open pit.

NO. 10 SEAM, 7 OPEN PIT: This open pit, at an elevation of 4,900 feet, is approximately 3 miles south of Sparwood on the east side of the Elk Valley. Coal mined here was hauled by contractor over 5 miles of private road to the coal-preparation plant at Michel. Operations were spasmodic and production was approximately 60,348 tons of saleable coal.

MICHEL COAL-PREPARATION PLANT

This plant is near the entrance to the old rock tunnels on the south side of the Michel Colliery site. It was built in 1938, and a description of the mode of operation has been given in past Annual Reports of the Minister of Mines and Petroleum Resources. The plant ceased coal-cleaning operations in August, and work thereafter was confined to the screening of coal, occasional drying for the by-products plant, and limited shipping on a one-shift basis. The number of employees was reduced from 40 to 14.

MICHEL BY-PRODUCTS PLANT

The by-products plant is situated near the coal-preparation plant. During the year it employed approximately 60 men. Present operations are confined to the horizontal-fired

Curran-Knowles ovens, a detailed description of which has been given in previous Annual Reports of the Minister of Mines and Petroleum Resources. The plant produced 147,569 tons of coke, 18,200 tons of coke breeze, and 702,421 gallons of tar in 1971.

PROSPECTING AND EXPLORATION

All exploration activities were conducted from the mine offices at Elk Valley, Natal. In the Michel mining area exploration related to the operations division included the completion of 101 bore holes, totalling 38,945 feet of drilling; four adits, totalling 1,385 feet of underground workings; 6.5 miles of access roads; and 2 miles of seam tracing and trenching.

Exploration in lands outside the Michel mining area was confined to the company's Elk Valley lands and included the completion of one adit, totalling 210 feet of underground workings. The field crew consisted of three geologists, one technician, one bulldozer foreman, three bulldozer operators, two firebosses, eight miners, and two surveyors.

CROWS NEST INDUSTRIES LIMITED

LOCATION: Lat. 49° 56′ Long. 114° 46′ (82G/15)
On Line Creek, a tributary of the Fording River.
LICENCES: Nos. 294 and 295.
ACCESS: Access to the property is by approximately 17 miles of logging road north from Natal.
OWNER: CROWS NEST INDUSTRIES LIMITED, Box 250, Fernie; J. J. Crabb, vice-president in charge of exploration work.
WORK DONE: A small open pit was begun to provide a 15,000 to 20,000-short-ton bulk sample of coal for washability tests.
REFERENCES: *B.C. Dept. of Mines & Pet Res.,* 1969, p. 419; 1970, p. 524.

FORDING COAL LIMITED

LOCATION: Lat. 50° 12′ Long. 114° 52′ (82J/2W)
The property lies along the upper Fording Valley, with plant site elevation at 5,500 feet, and coal seams outcropping up to 7,000 feet. The operation is approximately 40 miles north of Natal.
LICENCES: Seventy-five.
ACCESS: Total of 42 miles of road north of Natal Junction on Highway 3, via 23 miles along the Elk Valley to Elkford, then 7 miles easterly to the Fording River and 12 miles north along the upper Fording Valley.
OWNERS: Fording Coal Limited, Canpac Minerals Limited, and Cominco Ltd.
OPERATOR: FORDING COAL LIMITED, c/o Cominco Ltd., Trail.
WORK DONE:

Kootenay Engineering Ltd., the prime contractor, completed the major portion of the building construction work, assembled mining equipment as necessary, and installed most of the processing plant machinery. In addition, the contractor completed various service projects such as the reconstruction of 12 miles of road between Elkford and the mine, the

Plate XA. General view of Fording plantsite construction, September 1971. Looking easterly across Fording River valley at Eagle Mountain and Clode Creek pit. (Courtesy of Cominco Ltd.)

Plate XB. Clode Creek pit bench preparation, December 1971. Fifteen-yard shovel loading 120-ton haulage truck. (Courtesy of Cominco Ltd.)

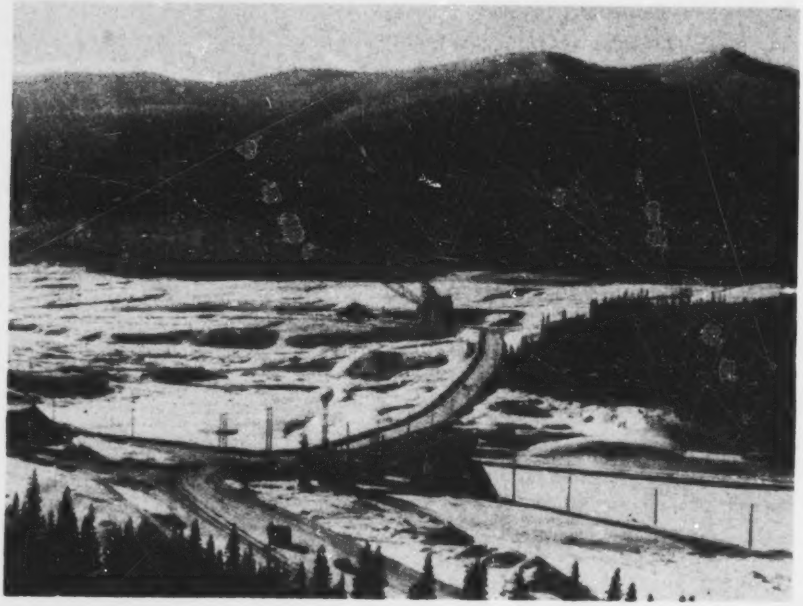
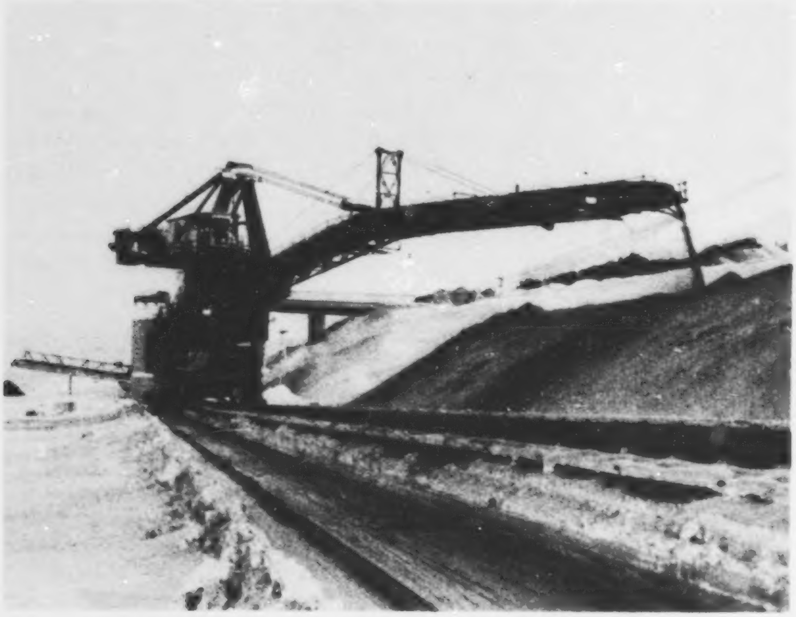


Plate XIA. Sixty-cubic-yard dragline undergoing operating test at Greenhills pit, December 1971. View looking west from Clode Creek pit area. (Courtesy of Cominco Ltd.)

Plate XIB. Boom stacker laying stockpile of crushed, raw run-of-mine coal, December 1971. (Courtesy of Cominco Ltd.)



laying of 42 miles of gas pipeline to Sparwood, and the building of 34 miles of railroad from Sparwood. Manpower rose from 309 in January to a maximum of 615, and finally dropped to 170 in December.

Included in the mining equipment obtained were a 60-cubic-yard Marion-8400 walking dragline, one 23-cubic-yard front-end loader, two 15-cubic-yard shovels, and three 13.5-cubic-yard front-end loaders. The haulage equipment commissioned included nineteen 120-ton capacity trucks.

The coal-processing plant installed included the following units: Grizzly breaker station, stacker-reclaimer, wash plant, thermal drier, clean coal storage plant, and a load-out and weigh station.

In April, while the foregoing was being done, Fording Coal Limited began hiring men and commenced the development, clearing, and excavation of the Greenhills dragline and Clode Creek shovel pits before spring break-up started. The working force continually increased throughout the year, until at the end of December there were 333 hourly paid workmen employed. At the same time the staff increased from 16 to 86 persons.

Clearing and burning were completed on 479 acres which included 404 acres for the Greenhills pit and spoil areas, 40 acres for the 'Repeat 4' pit, and 35 acres for the coarse refuse dump area. Fourteen thousand feet of road was constructed, 3,000 feet of which was for a haul road to serve the Greenhills pit and the remainder to provide access to the Clode Creek pit.

In order to protect Fording River from pollution, clean water diversion channels were completed on the Clode Creek watershed and in the watersheds of the drainages entering the Greenhills dragline pit. The surface drainage from the Clode Creek pit will flow into two separate impoundment areas for settling and decantation, and that from the Greenhills pit will run into the plant tailings pond.

To assist spoil stabilization, French drains were installed at the site for the Clode Creek pit spoil dump and a toe dyke was made of waste from the 'Repeat 4' pit.

Mining commenced on the top benches of Clode Creek pit where 2,315,000 cubic yards of waste material was removed and 195,900 long tons of raw metallurgical coal and 40,600 long tons of oxide coal were produced. The coal was stockpiled for cleaning.

At the 'Repeat 4' pit, designed to recover a faulted remnant of No. 4 seam, about 1,122,800 cubic yards of waste, roughly 50 per cent of the intended excavation, was removed and 2,500 long tons of raw metallurgical coal was produced and stockpiled.

No waste nor coal was removed from the Greenhills dragline pit site.

In addition to the foregoing, Fording Coal Limited continued its exploration programme to prove additional upper seam coal reserves and to consolidate geological interpretation of previous known reserves. In doing this work, three adits totalling 215 feet were driven, 38 holes totalling 11,766 feet of rotary drilling were completed and logged, and 2,100 feet of outcrop was exposed by trenching.

To provide accommodation for the personnel employed at the mine, the town of Elkford was established in the Elk Valley about 12 miles from the mine and 23 miles from Sparwood. The town, complete with all necessary service facilities, was incorporated on August 2, 1971.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 523, 524.

VINCENT OPTION

LOCATION: Lat. 50° 30′ Long. 115° 00′ (82J)
Upper Elk Valley, near the provincial boundary with Alberta, at elevations between 5,300 and 6,700 feet.

LICENCES: Nos. 572 to 587, 798 to 800, 1012 to 1018.

ACCESS: By approximately 60 miles of forestry road north from Natal.

OWNER: C. Vincent Construction Ltd.

OPERATOR: RIO TINTO CANADIAN EXPLORATION LIMITED, 2400, 120 Adelaide Street West, Toronto 1, Ont.

DESCRIPTION: The coal is found in the Kootenay Formation, part of the Lewis thrust plate. It owes its present position to deformation and erosion subsequent to the Laramide orogeny.

WORK DONE: A total of 2,400 feet of rotary drilling in three holes was done.

NORTHERN INSPECTION DISTRICT

By A. D. Tidsbury, except as noted

QUESNEL COAL PROJECT

LOCATION: Lat. 52° 35′-50′ Long. 122° 15′-40′ (93B)
South of Quesnel, along the Fraser River.

LICENCES: Fifty-nine, totalling 27,992 acres.

ACCESS: By Highway 97 along the east bank and gravel road along the west bank of the Fraser River, 25 miles south of Quesnel.

OWNER: MASTER EXPLORATIONS LTD. (wholly owned subsidiary of Alberta Coal Ltd.), Box 2880, Calgary 2, Alta.

DESCRIPTION: Coal measures are exposed above river level along both sides of the Fraser. The coal is lignite with Btu in excess of 8,000. The basin being evaluated is structurally complex, with some relatively flat areas containing good mining thicknesses of coal, though ash and shale partings are significant. Most work done in 1971 was on private lands.

WORK DONE: Mapping, minor access road work for drill locations, and 1,395 feet of drilling in five holes were completed during December 1971.

REFERENCE: *Minister of Mines, B.C.,* Ann. Rept., 1923, pp. 125-127.

BOWRON RIVER COAL

By A.R.C. James

LOCATION: Lat. 53° 50′ Long. 121° 55′ (93H)
On Bowron River, 4 miles south of Purden Lake.

LICENCES: Thirty-six.

ACCESS: By forest road from Buckhorn Lake and Francis Lake, 35 miles.

OWNER: Northern Coal Mines Limited.

OPERATOR: BETHLEHEM COPPER CORPORATION LTD., 700, 1177 West Hastings Street, Vancouver 1.

DESCRIPTION:

A general description of the coalfield was given in Geology, Exploration, and Mining, 1970 on page 528. The drilling and investigation done in 1971 has indicated that the coal-bearing rocks have easterly dips ranging from 60 degrees on the west edge of the Bowron River graben to 20 degrees in the northern part of the area. There appears to be no obvious decrease in dip in the centre of the basin as had been previously thought. Hole 71-5, 3,200 feet east of Bowron River penetrated volcanic rocks at 272 feet. This suggests that the width of the sedimentary basin may be less than previously believed and in this area may be little more than 1 mile. Kucera concludes that the sedimentary structure is in the form of a graben which has been downdropped in relation to the surrounding Slide Mountain Group rocks. The Bowron River graben has been traced from Purden Creek southeastward for a distance of approximately 10 miles.

The sedimentary series attain a maximum thickness of at least 2,200 feet. A 'coal zone' occurs in the basal 250 feet. Several seams occur in this coal zone, but the drill holes indicate considerable variation in thickness of the seams and interbedded sediments, consequently correlation of seams has not been possible. Kucera's work indicates that the 'coal zone' is limited to about 2.5 miles along the strike. The drilling done so far has indicated an average extension down dip of about 2,500 feet. Samples indicate that the coal is a high volatile B bituminous according to A.S.T.M. ranking. The mineral matter-free Btu ranges from 13,500 to 13,900. The sulphur content in 11 samples ranged from 0.9 to 3.06 per cent and averaged 1.63 per cent. The coal is reported to have coking qualities but is non-swelling.

WORK DONE: An investigation of the stratigraphy and structure of the coal-bearing rocks was carried out under the superivison of R. E. Kucera. Five holes were diamond drilled totalling 7,484 feet. These were holes drilled east of Bowron River on coal licences 162, 163, and 1644. Geological mapping was carried out over most of the property. Drill cores and logs furnished by Northern Coal Mines Limited were also studied. The underground workings were abandoned. Bethlehem terminated its option agreement at the end of the season.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1948, pp. 233-240; 1967, p. 459; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 528.

DENISON MINES LIMITED (SAXON PROJECT)

LOCATION: Lat. 54° 20' Long. 120° 08' (93I)
On the Narraway River and Saxon Ridge, close to the Alberta-British Columbia boundary.

LICENCES: Fifty-three coal licences, 50 of 640 acres each and 3 of 480 acres each.

ACCESS: From Grande Prairie, Alberta, by 120 miles of old road and 25 miles of new road.

OWNER: DENISON MINES LIMITED, 1660, 540 Fifth Avenue SW., Calgary 1, Alta.

DESCRIPTION: The area of interest is underlain by the coal-bearing Commotion Formation of Early Cretaceous age, with a regional dip of 30 to 60 degrees southwest. Coal also occurs in the Gething Formation.

WORK DONE: The project area was geologically mapped at a scale of 1 inch equals one-quarter mile. Adits totalling 250 feet were driven for exploration and sampling. Three holes were core drilled totalling 3,200 feet. Thirteen miles of access roads was constructed.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 527.

McINTYRE PORCUPINE MINES LIMITED

LOCATION: *Monkman Pass Project:*
Lat. 54° 50′ Long. 120° 50′ (93I)
Along the eastern foothills of the Rocky Mountains between Narraway River and Kinuseo Creek, a distance of 50 miles.

Falling Creek Project:
Lat. 55° 31′ Long. 122° 15′ (93O)
On Falls Mountain along the north bank of Falling Creek, a tributary of Pine River, southeast of Highway 97.

LICENCES: One hundred and forty-four covering 90,280 acres (140 square miles).

ACCESS: The Monkman Pass project is accessible by helicopter from Prince George or Dawson Creek, 100 miles, or by road from Beaverlodge, Alberta, 80 miles. The Falling Creek project is accessible from Highway 97 by fording the Pine River, and travelling on oil exploration roads.

OWNER: McINTYRE PORCUPINE MINES LIMITED, 312, 409 Granville Street, Vancouver 2.

DESCRIPTION: Most of the holdings are believed to be underlain by the coal-bearing Lower Cretaceous Gething and Commotion Formations.

WORK DONE: Reconnaissance and surficial geological mapping was continued. No physical work was undertaken.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1970, p. 526.

BULKLEY VALLEY COLLIERIES LTD.

By A.R.C. James

LOCATION: Lat. 54° 40′ Long. 127° 10′ (93L)
This property lies a few miles southwest of Telkwa.

LICENCES: Six Crown-granted lots and 21 coal licences.

ACCESS: By gravel road from Telkwa, about 6 miles.

OWNER: BULKLEY VALLEY COLLIERIES LTD., Telkwa.

DESCRIPTION: A comparatively small area is underlain by sedimentary rock which are considered to be part of the Hazelton rocks of Late Jurassic and Early Cretaceous age. These rocks are faulted, partially eroded, and to a considerable extent overlain by glacial material, so that bedrock is not well exposed. In places the rocks have been found to contain seams of good quality high volatile bituminous coal of mineable thickness, and these have been mined where it has been found economic. Production in the coalfield started in 1918, and up to the end of 1970, 477,344 tons had been mined. This came from seven small underground mines and two small open-pit operations. About 90 per cent of the production has been from property held by Bulkley Valley Collieries Ltd.

WORK DONE: There was no coal production in 1971. Access roads were driven to permit exploration on Lots 221, 230, 389, 391, and 401. Trenching and examination of coal seams were done in the southeast sector of Lot 401.

REFERENCES: *Minister of Mines, B.C.,* Ann. Repts., 1951, pp. 291-297; 1967, pp. 458, 459; *B.C. Dept. of Mines & Pet. Res.,* G.E.M., 1969, p. 422.

CINNABAR PEAK MINES LTD. (JOHNSON MOUNTAIN PROPERTY)

LOCATION: Lat. 55° 55' Long. 122° 08' (93O)
On Coalbed and Johnson Creeks, about 15 miles southwest of Hudson Hope, south of Williston Lake.

LICENCES: Thirty-seven coal licences, 27 being of 640 acres each and the remaining 10 totalling 4,485 acres.

ACCESS: By 10 miles of the Johnson Creek forest access road, westerly from the Chetwynd-Hudson Hope highway at Mile 28.8.

OWNER: CINNABAR PEAK MINES LTD., 9431 – 75th Street, Edmonton, Alta.

DESCRIPTION: Coal seams are found throughout the Lower Cretaceous Gething Formation in a stratigraphic thickness of about 1,600 feet, on both sides and at the southern end of a southerly plunging anticline. Twenty seams ranging from 2.5 to more than 8 feet thick and numerous thinner seams are reported. Some of the coal is of coking quality.

WORK DONE: Surface geological mapping at scales of 1 inch equals 1,000 feet, 1 inch equals 40 feet, and 1 inch equals 200 feet was conducted over sections of the surface exposures; 4 miles of road was constructed; and sampling of trenches was completed.

BRAMEDA RESOURCES LTD.

LOCATION: *Gething Creek Project:*
Lat. 55° 55' Long. 122° 22' (93O)
On Dowling and Gething Creeks, about 6 miles northeast of Mount McAllister, 20 miles west from Hudson Hope.
Sukunka River Project:
Lat. 55° 12' Long. 121° 35' (93P/4E)
Thirty-six miles by road south of Chetwynd on the west slope of Bullmoose Mountain at Skeeter and Chamberlain Creeks.
Burnt River Project:
Lat. 55°. 20' Long. 121° 50' (93P)
On Burnt and north Burnt Rivers, 5 miles west of the Sukunka River.

LICENCES: Gething Creek project, 18 coal licences of 640 acres each.
Sukunka River project, 100 coal licences of 640 acres each and 2 coal licences of 480 and 600 acres. Burnt River project, 26 coal licences of 640 acres each.

ACCESS: The Gething Creek and Burnt River projects are not yet accessible by wheeled vehicles. The Sukunka River project is served by 36 miles of forest access road up the east side of the Sukunka River.

OWNER: BRAMEDA RESOURCES LTD., 7th Floor, 1177 West Hastings Street, Vancouver 1.

DESCRIPTION:

The Sukunka River project has been divided into three blocks. Block 'A' embraces the coal licences about the area of main interest during 1970, and has now become a joint venture arrangement between Brascan Limited, Brameda Resources Ltd., and Teck Corporation Ltd. (*see* Coalition Mining Limited).

Block 'B,' comprising mainly licences located on the north slope of Bullmoose Mountain, is now a joint venture operation with Teck Corporation [*see* Teck Corporation Ltd.].

Block 'C' includes the remaining coal licences in the Sukunka River project, the Burnt River project, and the Gething Creek project.

WORK DONE: No work was done in 1971 on the Sukunka River project Block 'C' coal licences, the Burnt River, nor the Gething Creek projects.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, pp. 423-425; 1970, pp. 525, 526; *Geol. Surv., Canada,* Paper 61-10, Dawson Creek Map-Area.

HOGAN MINES LTD. – TEXACAL RESOURCES LTD.

LOCATION: Lat. 56° 00′ Long. 122° 20′ (93O)
In the Gaylord Creek area, east of Mount Gething, approximately 20 air miles east of Hudson Hope.

LICENCES: Twenty-four coal licences, 17 being of 640 acres each and the remaining 7 totalling 2,563 acres.

ACCESS: By means of the Bennett Dam and highway, thence southwesterly on 8.75 miles of newly constructed access road.

OWNERS: HOGAN MINES LTD. (now Bow River Resources Ltd.), 811, 850 West Hastings Street, Vancouver 1 and TEXACAL RESOURCES LTD., 1700, 777 Hornby Street, Vancouver 1.

DESCRIPTION: The area of interest is believed to be a synclinal structure underlain by the known coal-bearing Gething Formation. The holdings are largely timber covered and obscured with overburden, so the extent and economic significance of the coal deposit remains to be determined.

WORK DONE: A geological study was initiated, and five core holes totalling 1,791 feet were drilled. Structural confirmation was provided and coal measures were intersected during the work conducted in December.

NICKEL HILL MINES LTD. (BULLHEAD MOUNTAIN)

LOCATION: Lat. 56° 06′ Long. 122° 10′ (93O, 94B)
The holdings are east of Butler Ridge and north of Bullhead Mountain, 14 air miles northwest of Hudson Hope.

LICENCES: Forty-three coal licences, 31 being of 640 acres each and the remaining 12 totalling 4,395 acres.

ACCESS: By the Bennett Dam and Beryl Prairie highways, thence westerly by trails.

OWNER: NICKEL HILL MINES LTD., c/o Alrae Engineering Ltd., 844 West Hastings Street, Vancouver 1.

DESCRIPTION: Reconnaissance mapping of the Lower Cretaceous Gething Formation was completed over areas of outcrop along the flanks of the Butler Ridge and Bullhead Mountain anticlines. About 30 coal seams have been located, the thickest being 5 feet.

WORK DONE: Mapping at a scale of 1 inch equals 2,000 feet over most of the coal-licence areas.

AYRSHIRE COAL COMPANY, INC.

LOCATION: Lat. 56° 15′ Long. 122° 15′ (93O, 94B)
On the northeast flank of Butler Ridge, about 12 miles north of Williston Lake and 25 miles by road northwest from Hudson Hope.

LICENCES: Eighty-eight coal licences, 64 being 640 acres each and the remaining 24 totalling 8,645 acres.

ACCESS: By gravel road 13 miles north from Beryl Prairie, thence west for 10 miles by trail.

OWNER: AYRSHIRE COAL COMPANY, INC. (now Amax Coal Company, Inc.), 710 Calgary House, 550 Sixth Avenue SW., Calgary 1, Alta.

DESCRIPTION: The area investigated lies on the northeast flank of Butler Ridge, a prominent northwest trending structure. A number of coal seams were intersected by drilling, but none are believed to be of economic significance.

WORK DONE: Regional surficial mapping, geological mapping, and access road building consisting of 11.3 miles of new road with upgrading of 8 miles of existing road; drilling and gamma logging of four rotary-drill holes totalling 4,488 feet. To meet reclamation requirements roads, drill sites, and the camp site have been approved; the access roads have been cross-ditched and closed.

UTAH MINES LTD. (CARBON CREEK PROJECT)

LOCATION: Lat. 56° 00′ Long. 122° 45′ (93O, 94B)
Along the Carbon Creek drainage basin south from Williston Lake to Beattie Peaks.

LICENCES: One hundred and forty-three coal licences and 10 Crown-granted lots acquired from Burns Foundation Ltd.

ACCESS: The project is reached by helicopter from Fort St. John, or by road, rail, and barge from McKenzie, via Williston Lake and the company's new property roads.

OPERATOR: UTAH MINES LTD., Box 3297, Vancouver 3.

WORK DONE: Twenty miles of drill access roads was built, and nine holes totalling 6,752 feet were drilled.

DENISON MINES LIMITED (QUINTETTE PROJECT, BABCOCK BLOCK)

LOCATION: Lat. 54° 54′ Long. 120° 58′ (93P, I)
On Babcock Creek, near Quintette Mountain, 75 air miles south-southeast of Chetwynd.

LICENCES: The southeast portion of the Denison Mines Limited block of holdings which include 206 coal licences.

ACCESS: From Beaverlodge, Alberta, by the Monkman Pass road and about 10 miles of newly constructed road.

OWNER: DENISON MINES LIMITED, 1660, 540 Fifth Avenue SW., Calgary 1, Alta.

DESCRIPTION: Coal-bearing sections of the Commotion (Gates Member) and Gething Formations are being investigated in an area with regional dips in the order of 30 to 60 degrees.

WORK DONE: Surface mapping at a scale of 1 inch equals 400 feet was completed over portions of the property; underground mapping of test adits was done; adits totalling 880 feet were driven for exploration and sampling; 12 holes totalling 9,110 feet were core drilled and 8 holes totalling 5,920 feet were rotary drilled.

DENISON MINES LIMITED (QUINTETTE PROJECT, WOLVERINE BLOCK)

LOCATION: Lat. 55° 02′ Long. 121° 17′ (93P, I)
On the Wolverine and Murray Rivers, north of Turning Mountain, 60 air miles south-southeast of Chetwynd.

LICENCES: The northwest portion of the Denison Mines Limited holdings which include 206 coal licences totalling 200 square miles.

ACCESS: By 65 miles of forest access and oil exploration road from Chetwynd.

OPERATOR: DENISON MINES LIMITED, 1660, 540 Fifth Avenue SW., Calgary, Alta.

DESCRIPTION: The initial area of interest is an anticlinal-synclinal structure partially exposed in an unnamed mountain at the camp site. Relationship of the exposed formations with those at the Brameda Resources Ltd. Sukunka River project is not yet clear. Faults are numerous and not yet fully defined. Coal of significant thickness has been encountered in drill holes, but its correlations and continuity remain to be resolved.

WORK DONE: Fifteen miles of existing oil exploration road was upgraded, and about 7 miles rerouted and newly constructed. Approximately 22 miles of drill access road was constructed, and four NQ core holes totalling 2,950 feet were drilled. Regional and surficial geology was mapped fith air support.

COALITION MINING LIMITED

LOCATION: Lat. 55° 12′ Long. 121° 35′ (93P/4E)
The holdings constitute Block 'A' coal licences of the Brameda Resources Ltd. Sukunka River project, 36 miles south of Chetwynd, on the west slope of Bullmoose Mountain.

LICENCES: Brameda Resources Ltd. Sukunka River project, Block 'A.'

ACCESS: By 36 miles of improved forest access road, south from Chetwynd, along the east side of the Sukunka River.

OPERATOR: COALITION MINING LIMITED, 20th Floor, 25 King Street West, Toronto 1, Ont.

DESCRIPTION: Approximately 8 square miles have been explored in considerable detail. The area of interest is underlain by the Gething, Moosebar, and Commotion Formations, with an overall regular structure of gentle dip interrupted by thrust faults of moderate displacement. The seam offering most promise, called the Chamberlain, averages 9 feet of clean coal, and is apparently uniformly continuous over the area explored. It is overlain by the Skeeter seam which is about 155 feet from the Gething Formation top. The Skeeter seam is irregular, pinching and swelling, and is not as clean as the Chamberlain. Chamberlain coal is classed as a medium volatile high-grade metallurgical coal with exceptional free swelling index and purity characteristics.

WORK DONE: During 1971, Coalition Mining Limited essentially duplicated the original drilling programme undertaken by Brameda Resources Ltd. by drilling a total of 40,000 feet in 48 holes. The No. 2 adit (Chamberlain seam) and No. 3 adit (Skeeter seam) were slightly extended to permit bulk sampling for testing purposes. A new No. 4 adit was driven 63.5 feet in the Chamberlain seam, and No. 5 adit was driven 66.6 feet. Both were bulk sampled.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, pp. 423-425; 1970, pp. 525, 526.

HOGAN MINES LTD.

LOCATION: Lat. 55° 17' Long. 121° 41' (93P)
The area of interest is astride the Sukunka River road, east of Highhat Mountain.

LICENCES: Fourteen.

ACCESS: By the Sukunka River forest access road, then by a short helicopter flight.

OWNER: HOGAN MINES LTD. (now Bow River Resources Ltd.), 811, 850 West Hastings Street, Vancouver 1.

WORK DONE: Seven hundred and fifty-five feet of NQ diamond drilling was completed in two holes.

ALBERTA COAL LTD.

LOCATION: Lat. 55° 30' Long. 121° 45' (93P)
The area of interest is east of Mile 32 on the Sukunka River forest access road.

LICENCES: Thirty-six, totalling 21,710 acres.

ACCESS: By the Sukunka River forest access road, 32 miles south of Chetwynd, thence east by 3.5 miles of new road to the working area.

OWNER: ALBERTA COAL LTD. (transferred to Master Explorations Ltd.), 300 Ninth Avenue SW., Calgary 2, Alta.

DESCRIPTION: The area of interest is underlain at shallow depth by the Gething Formation, on the northwest slopes of Bullmoose Mountain.

WORK DONE: Geological mapping was done over areas of outcrop; 6 miles of access road was constructed; and 12 holes totalling 2,318 feet were drilled.

TECK CORPORATION LTD.
(BULLMOOSE PROPERTY)

LOCATION: Lat. 55° 10' Long. 121° 45' (93P/3, 4, 5)
Located on the east slope of Bullmoose Mountain, astride Bullmoose Creek.

LICENCES: Coal licences designated as Block 'B' of the Brameda Resources Ltd. Sukunka River project which are 1063 to 1061, 1103 to 1152, 2141 to 2173, and 1067 and 1068.

ACCESS: By the Gwillem-Martin Creek forest access road, approximately 60 miles south from Chetwynd.

OWNERS: Brameda Resources Ltd. and Teck Corporation Ltd.

OPERATOR: TECK CORPORATION LTD., 7th Floor, 1177 West Hastings Street, Vancouver 1.

DESCRIPTION: The area of interest is underlain by the Gething Formation, with the target seams in the upper 200 feet of this horizon. Other coal seams have been noted in the Gates Member of the Commotion Formation.

WORK DONE: A topographical map at a scale of 1 inch equals 400 feet was compiled; geological mapping at scales of 1 inch equals 1 mile and 1 inch equals 1,000 feet was completed over 50 per cent of the property; 16 miles of access road was built; 3,000 lineal feet of trenching was done; and 15,000 feet of diamond drilling was completed in 15 holes.

NICKEL HILL MINES LTD. (PINK MOUNTAIN)

LOCATION: Lat. 57° 10′ Long. 122° 50′ (94B, G)
The holdings centre about Pink Mountain, extending north past the Sikanni Chief River and south past Cypress Creek, 12 to 30 miles west of the Alaska highway.

LICENCES: Pink Mountain group, 1919 to 1955; Stone group, 1956 to 1963; Spruce Mountain group, 1964 to 1974; Cypress Creek group, 1975 to 2006; Chicken Creek group, 2007 to 2018.

ACCESS: By the Alaska highway to Beatton River Crossing, thence westerly by oil exploraton and production roads.

OWNER: NICKEL HILL MINES LTD., c/o Alrae Engineering Ltd., 844 West Hastings Street, Vancouver 1.

DESCRIPTION: Coal measures were exposed in cuts of oil exploration roads in the Pink Mountain section. Various sections of the generally thin-bedded Gething Formation have been increased to possible economic thickness by local flexing. Coking qualities are good, but sulphur content is high (5 to 7 per cent).

WORK DONE: Some of the Pink Mountain group was mapped geologically at a scale of 1 inch equals 2,000 feet; a total of 12,000 lineal feet was trenched; and one 207-foot hole was drilled.

CAMP WILSON

By A.R.C. James

LOCATION: Lat. 53° 26′ Long. 132° 15′ (103F)
Near Wilson Creek, a small tributary of the Yakoun River on Graham Island, Queen Charlotte Islands.

LICENCES: Nos. 1878 and 1879.

ACCESS: From Skidegate by logging road, a distance of 14 miles.

OWNER: MacMILLAN BLOEDEL LIMITED, 1075 West Georgia Street, Vancouver 5.

DESCRIPTION: Coal showings occur in a number of places on Graham Island. The one at Camp Wilson comprises a lenticular seam of bituminous coal varying from 4 to 18 feet thick within a distance of 50 feet. Sutherland Brown has assigned this seam to the Middle Jurassic Yakoun Formation. The various coal showings were explored by short adits in the early years of the century, but little new work has been done in the past 50 years.

WORK DONE: An induced polarization survey was carried out by Tri-Con Exploration Survey Ltd.

REFERENCES: Sutherland Brown, A., *B.C. Dept. of Mines & Pet. Res.,* Bull. 54, p. 177; MacKenzie, J. D., *Geol. Surv., Canada,* Mem. 88; Dowling, D. B., *Geol. Surv., Canada,* Mem. 57, p. 153; *Minister of Mines, B.C.,* Ann. Rept., 1914, p. 164.

GROUNDHOG

By A.R.C. James

LOCATION: Lat. 56° 52' Long. 128° 20' (104A/16)
The Groundhog coalfield is situated near the headwaters of the Skeena River, 80 miles northwest of Stewart.

LICENCES: Approximately 50.

ACCESS: By fixed-wing aircraft from Smithers, 170 miles.

OWNER: National Coal Corporation Ltd.

OPERATOR: CANEX AERIAL EXPLORATION LTD., 700, 1030 West Georgia Street, Vancouver 5.

DESCRIPTION: Sedimentary rocks of the Hazelton Group (Upper Jurassic to Lower Cretaceous) outcrop over an area of several hundred square miles. Previous observers have reported intense deformation on the Hazelton Group and complex structural features. The outcrops of a number of coal seams of anthracite and semi-anthracite have been observed. Recent mapping and drilling (done in 1970) seems to indicate a more encouraging outlook from an economic point of view than that of previous investigators.

WORK DONE: Mapping on a scale of 1 inch equals 2,000 feet was carried out on coal licences 822 to 824, 832, 833, 841, and 842 under the supervision of D. M. Jenkins.

REFERENCES: *Minister of Mines, B.C.,* Ann. Rept., 1968, p. 470; Buckham, A. F. and Latour, B. A., *Geol. Surv., Canada,* Bull. 16, 1950.

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